

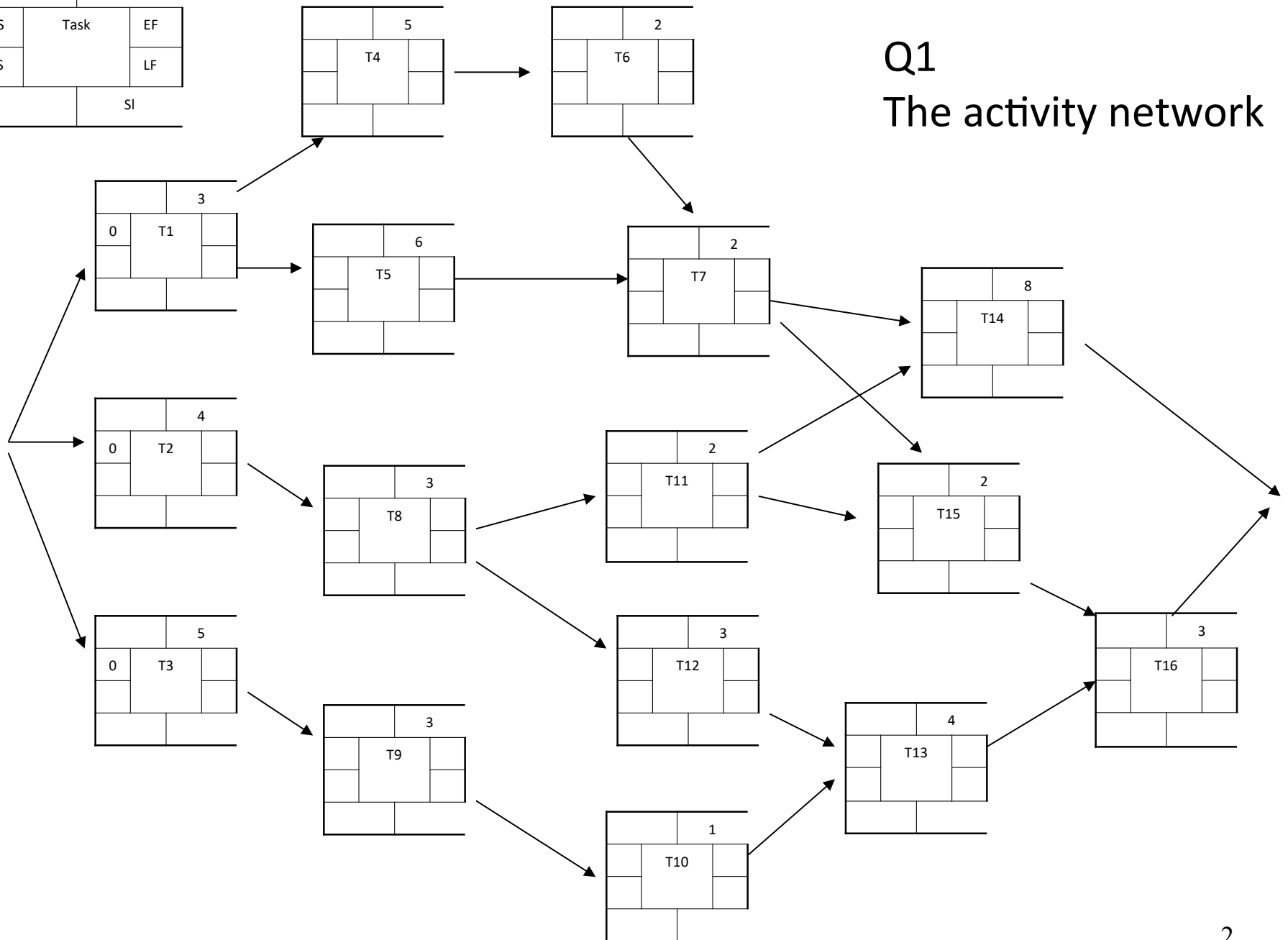
Worksheet1 – Planning Solutions

Please study these solutions carefully: if you have any queries, please do ask in the workshop

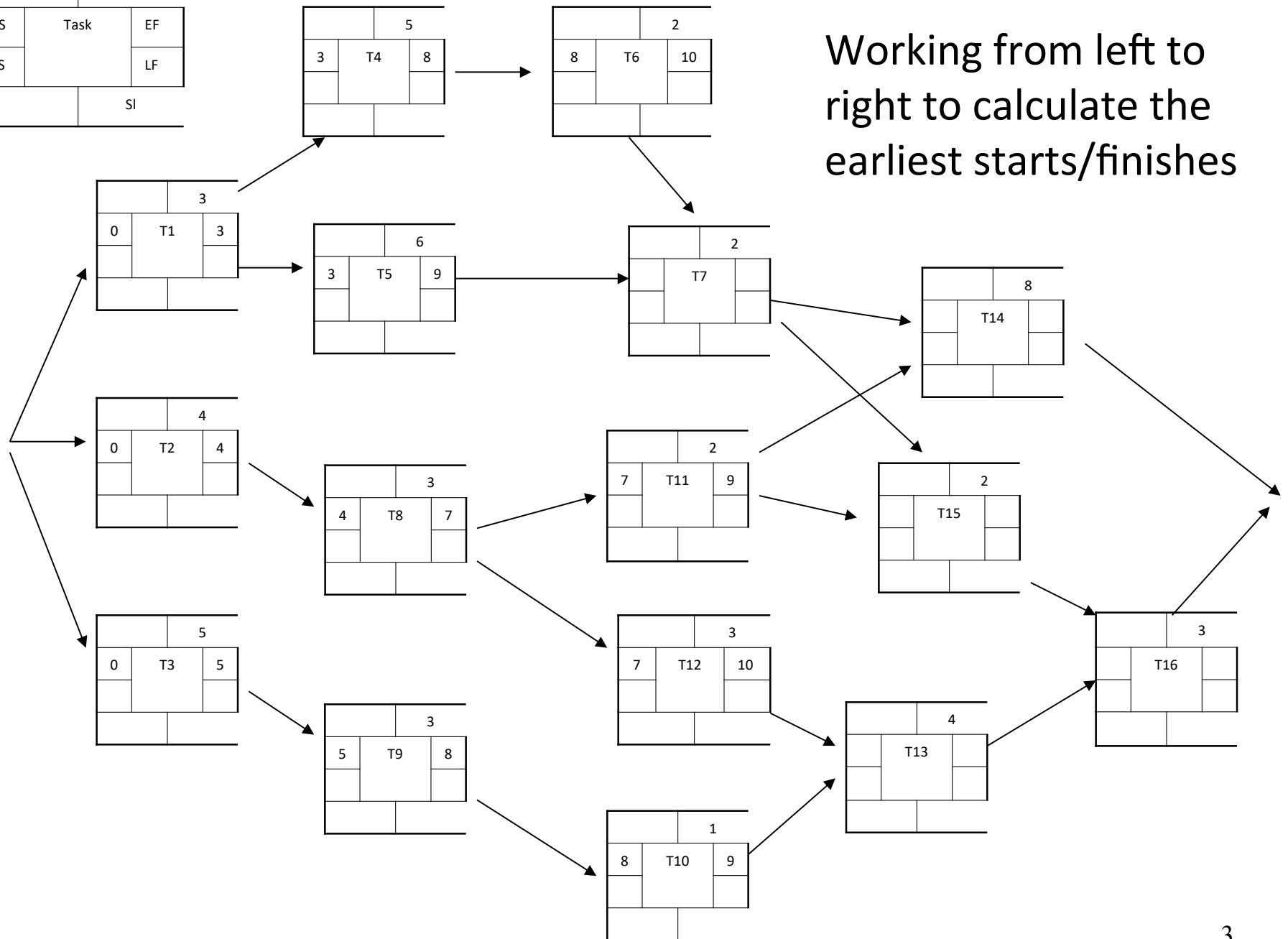
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ES	Task	EF	
LS		LF	
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Q1

The activity network

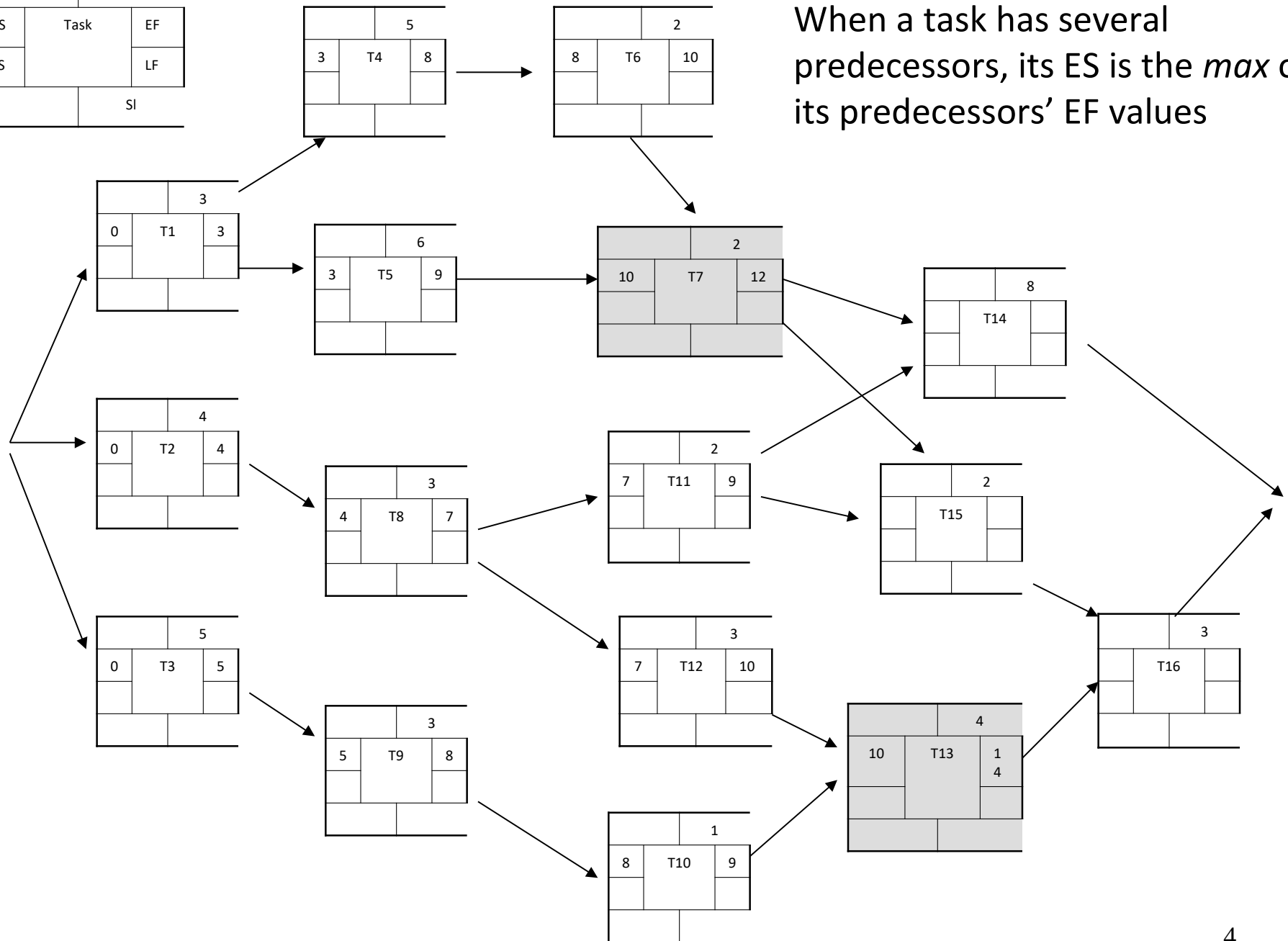


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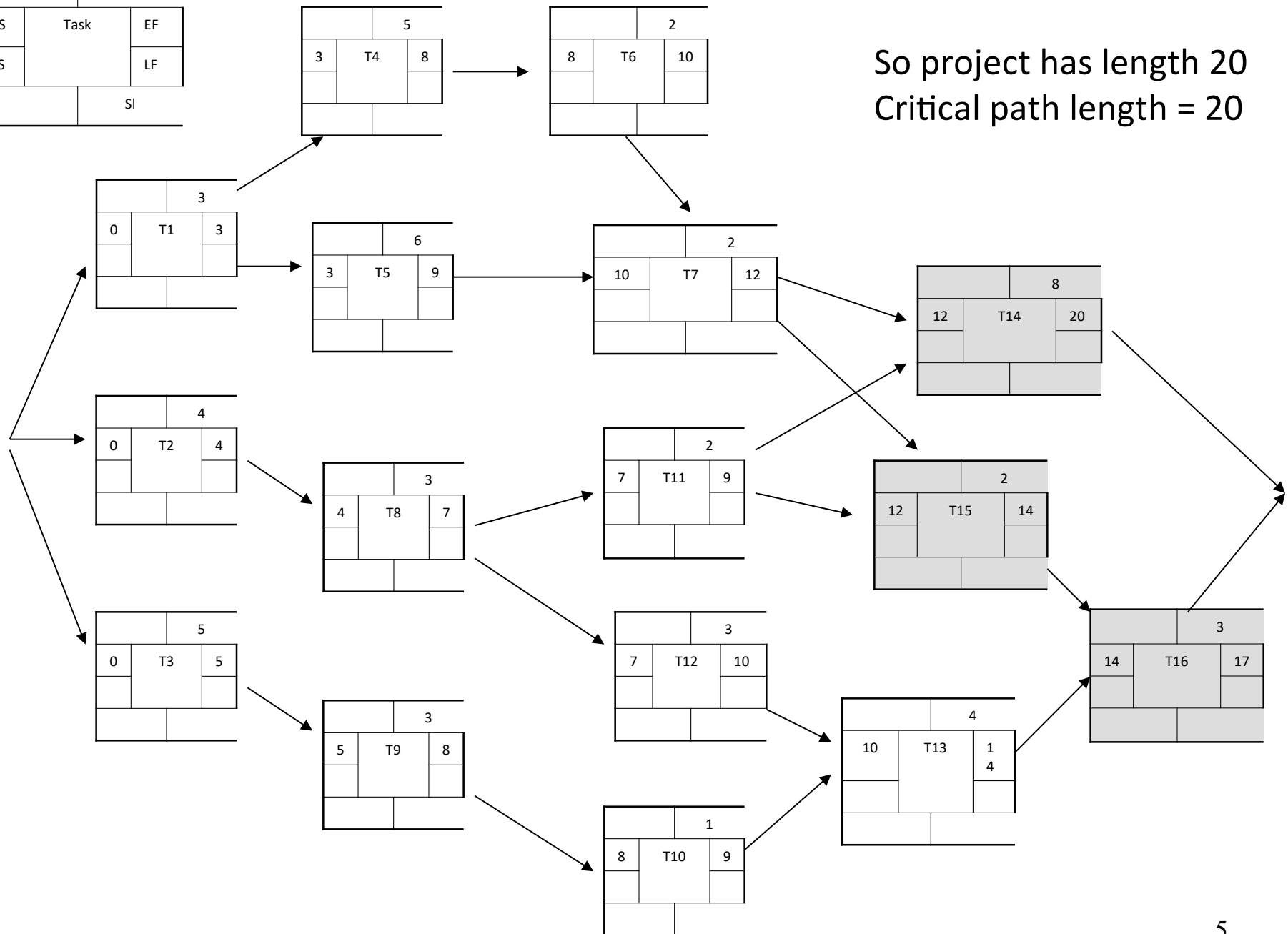


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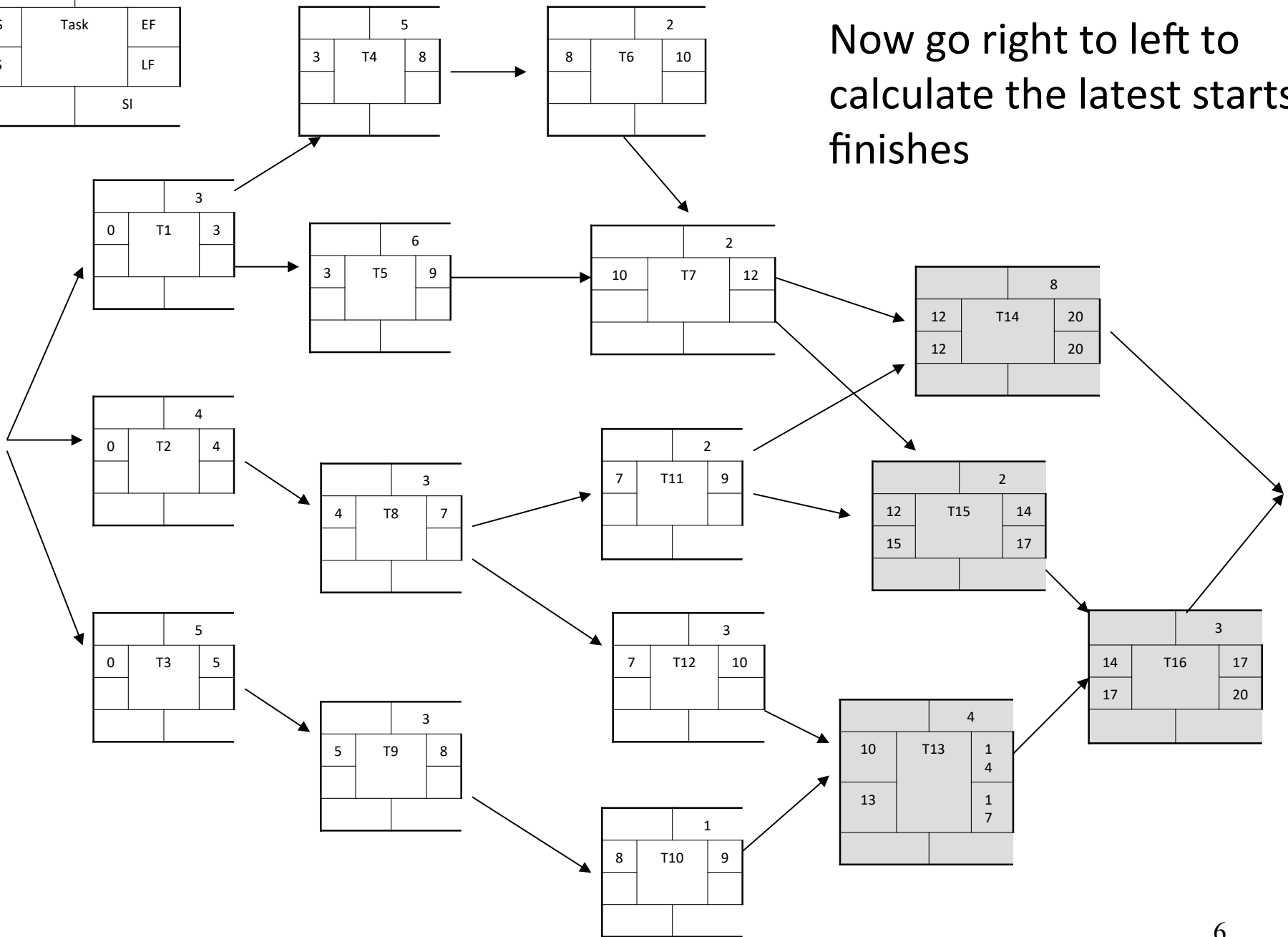
When a task has several predecessors, its ES is the *max* of its predecessors' EF values



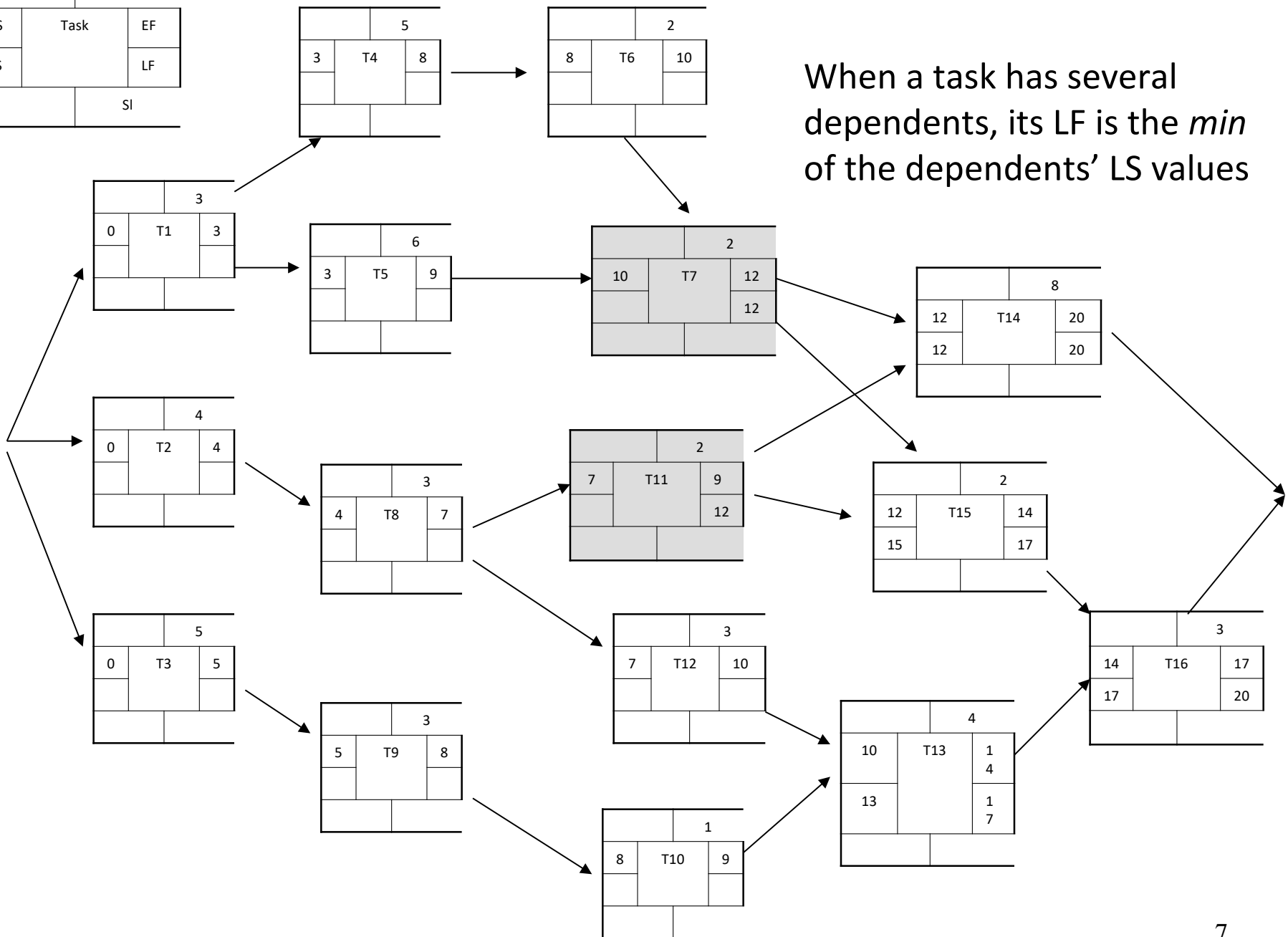
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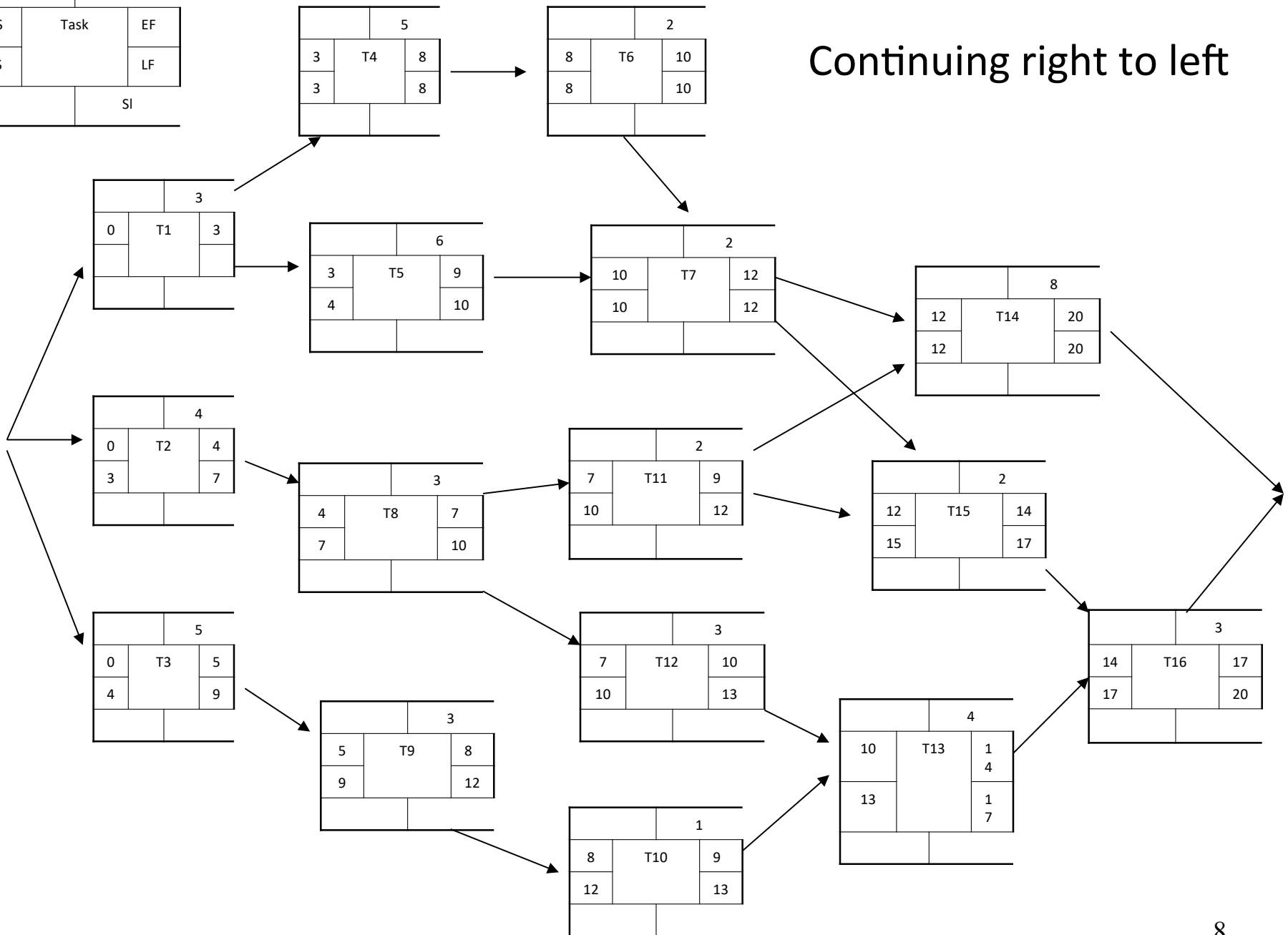


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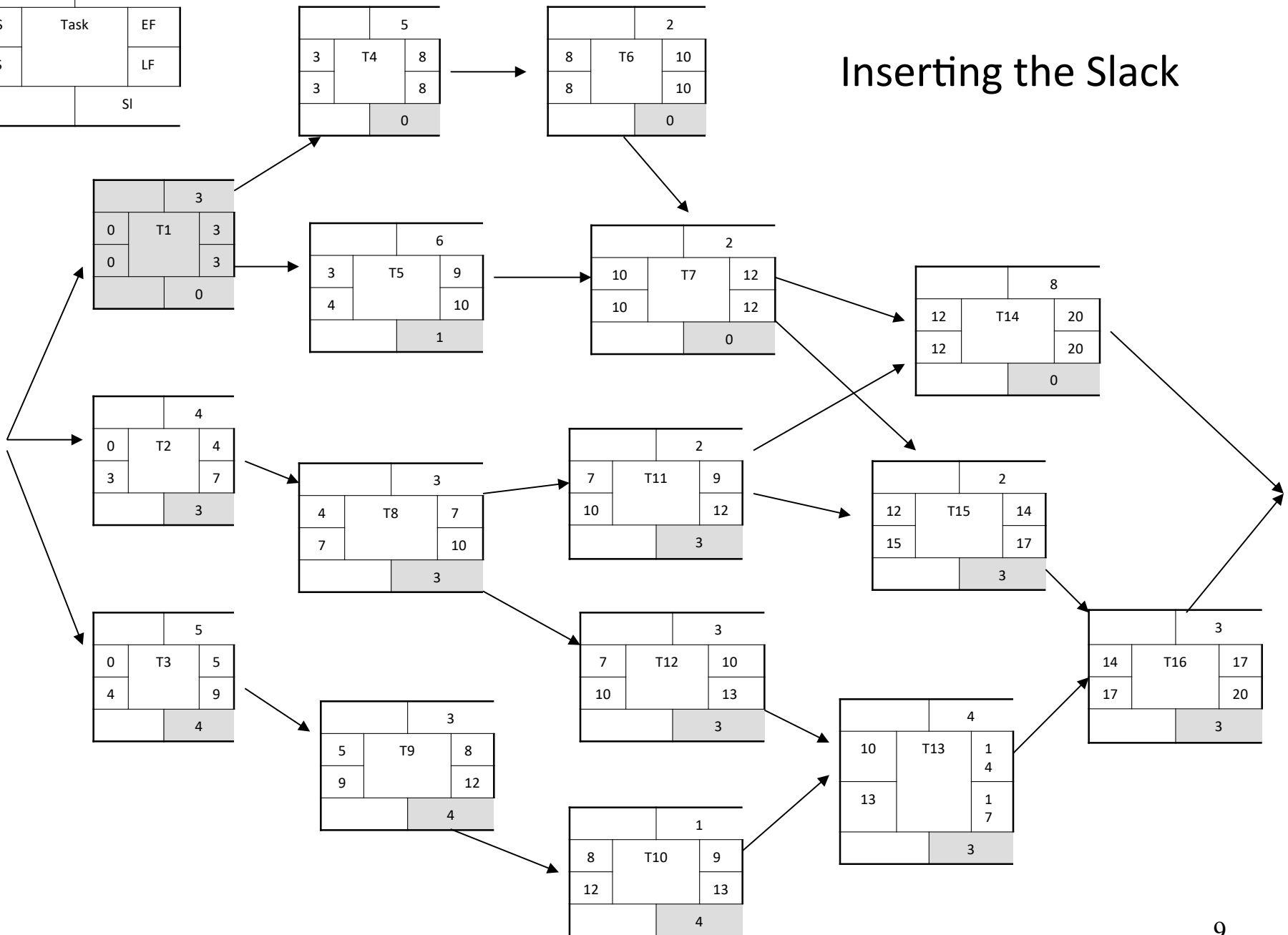
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Continuing right to left

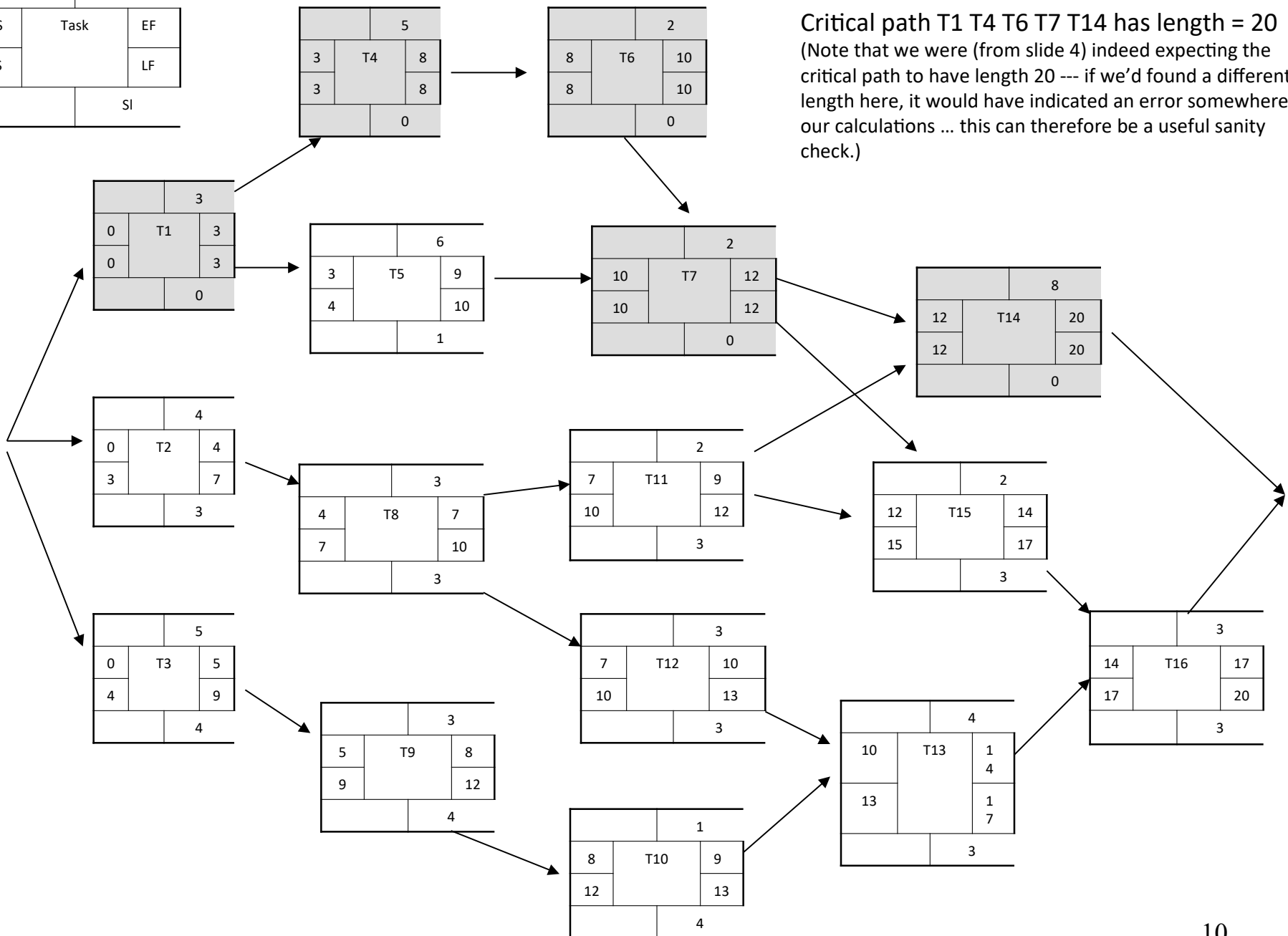


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Inserting the Slack



Dur.		
ES	Task	EF
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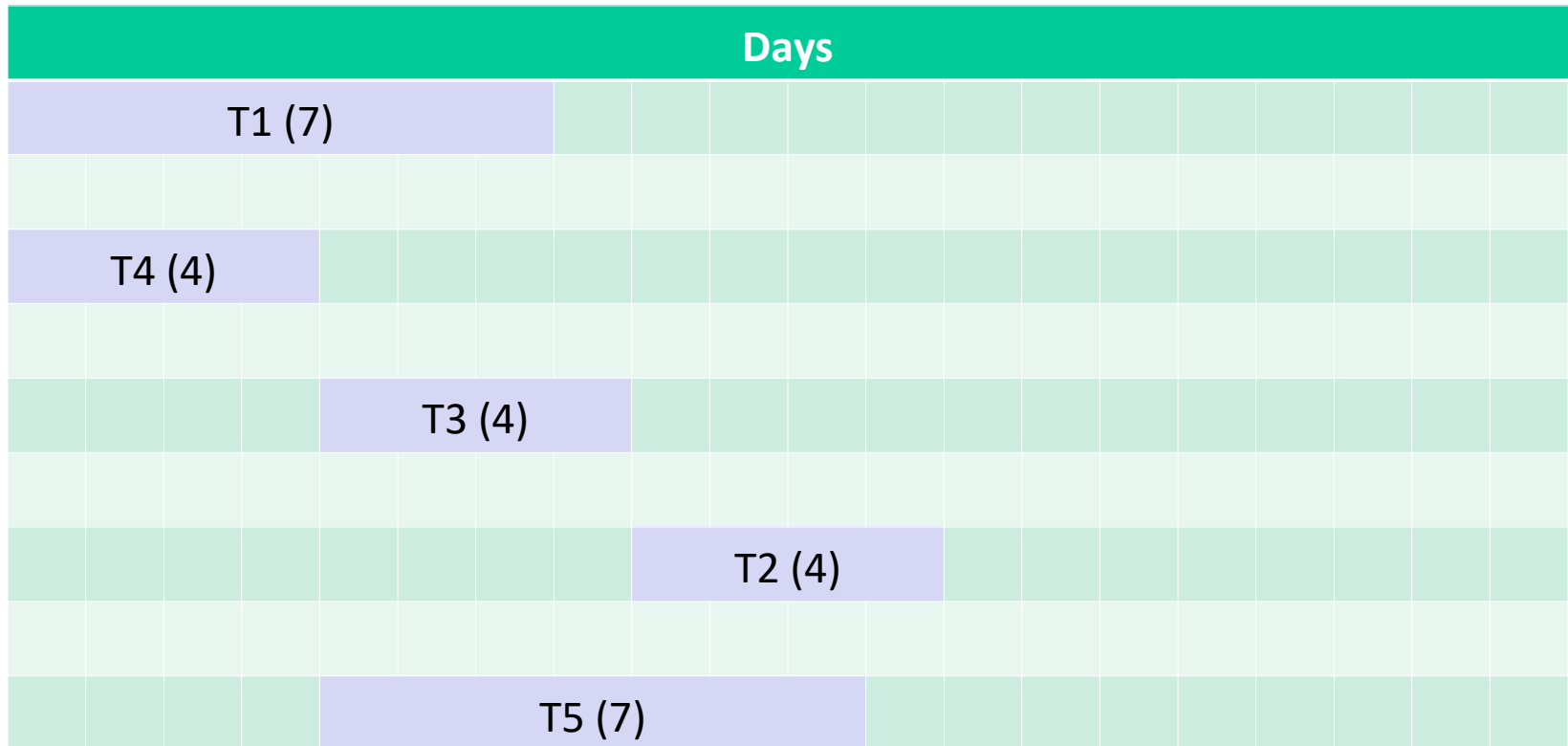
The effect of delay

- T10 has 4 weeks slack so a delay of 3 or 4 weeks would not extend the overall project
 - Alternatively: T10 lies on precisely one path which currently has length 16; a delay of 3 or 4 weeks would not extend the length of this path to more than 20, and therefore the overall project would not be extended in length

The effect of delay

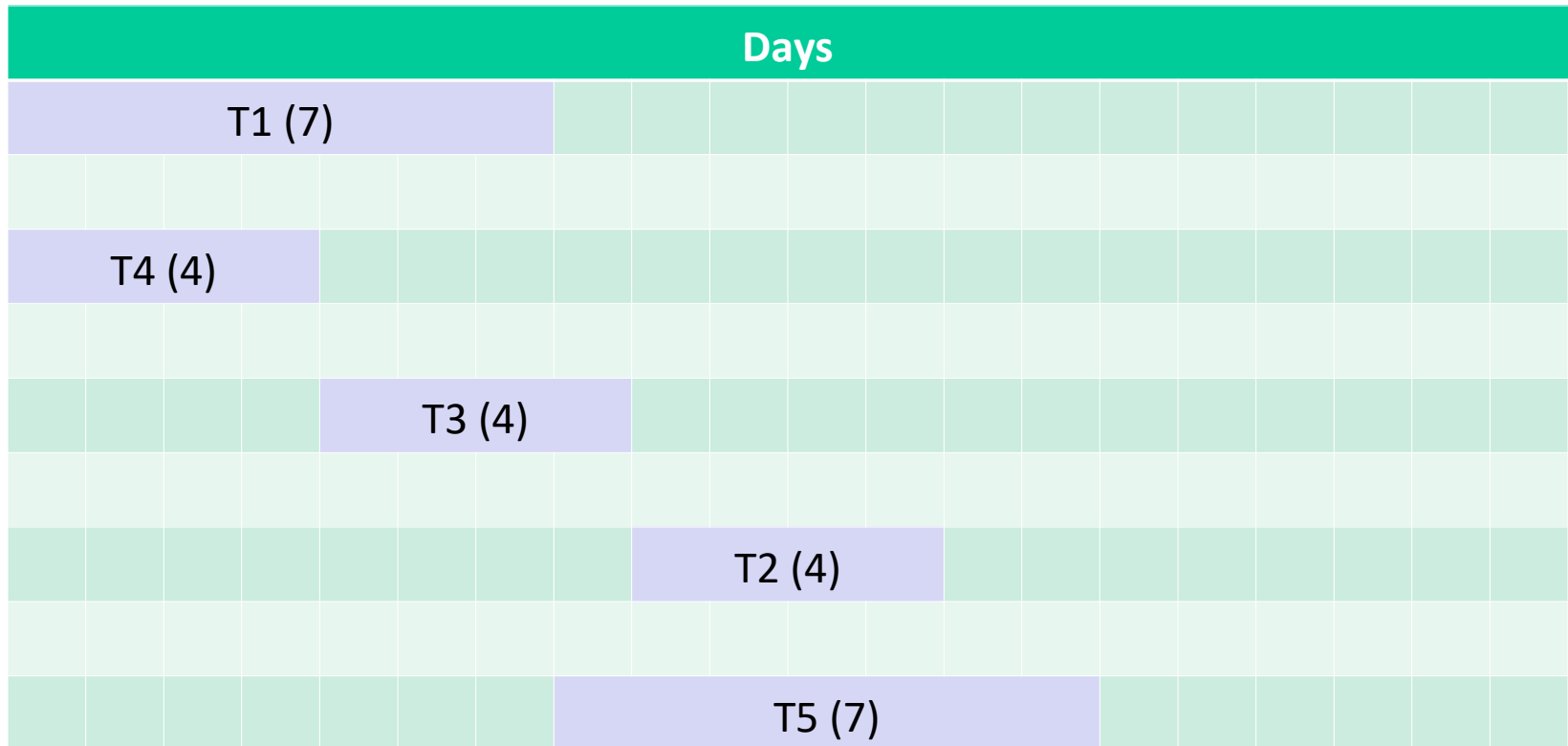
- T11 has 3 weeks slack so a delay of 3 weeks would not extend the overall project, but a delay of 4 weeks would push the project back by 1 week. Alternatively:
 - T11 lies on precisely two paths which currently have lengths 14 and 17. A delay of 3 weeks would not extend the length of either to more than 20, and therefore the overall project would not be extended in length.
 - A delay of 4 weeks would extend the length of the longer path to 21 weeks, and therefore it would delay the project by 1 week

Q2



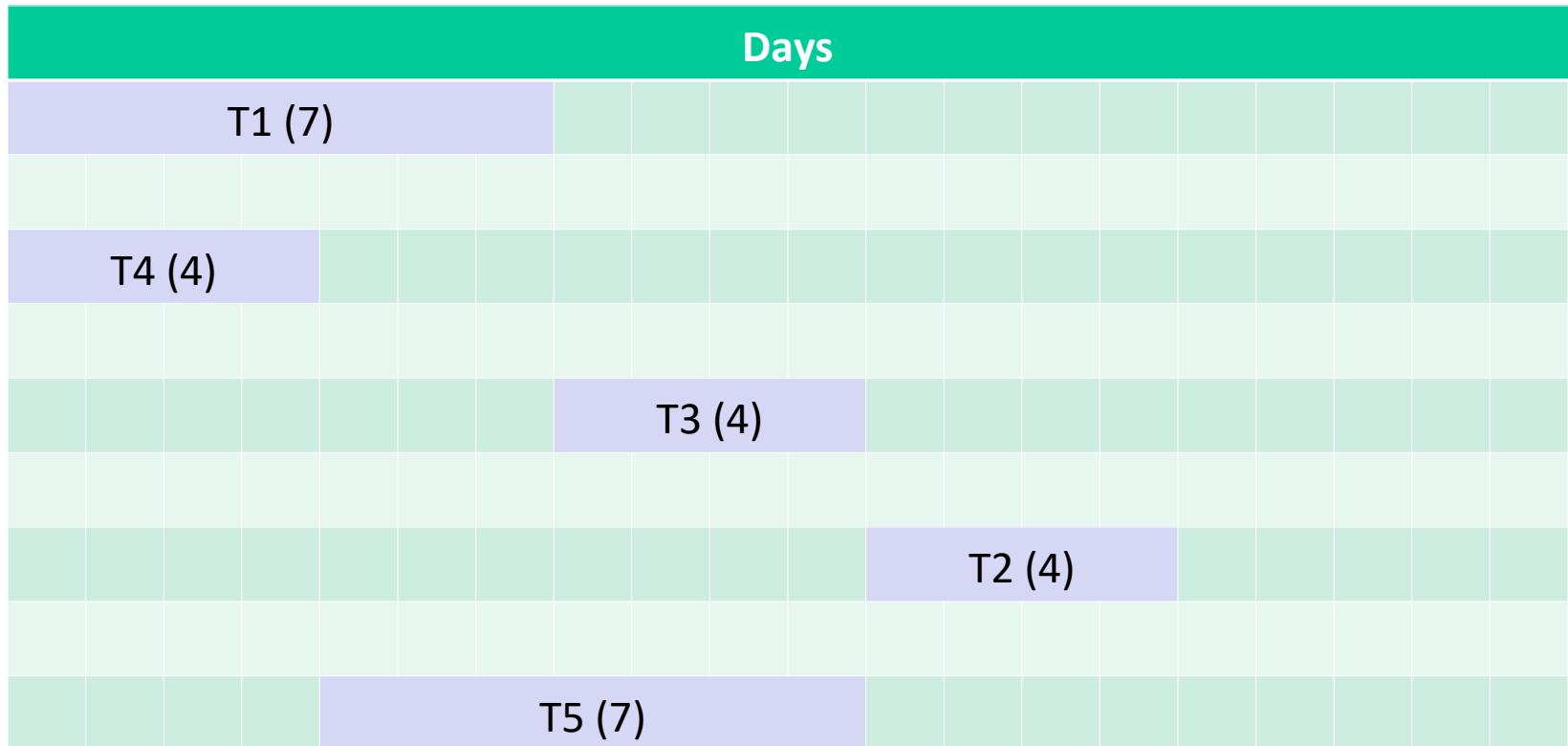
The initial Gantt chart with the tasks positioned at their earliest start dates. However we cannot start both T3 and T5 on day 5 because we only have two staff.

Q2



Giving priority to T3 (since it is on the critical path) we get the Gantt chart above and a project length of 14

Q2



If – instead - we'd given priority to T5, we see that we get the Gantt chart above and a project length of 15 days