

Modeling Time (Scheduling)

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Overview

- ▶ Scheduling problems
 - are one of the most common uses of CP in the real world
- ▶ Basic Scheduling
 - only precedence constraints
- ▶ Job Shop Scheduling
 - disjunctive global constraint
- ▶ Resource Constraint Project Scheduling
 - cumulative global constraint
- ▶ Sequence Dependent Setup Times
 - modeling order

Scheduling

- ▶ In discrete optimization
 - time is modeled by integers (not continuous)
- ▶ Time variables
 - tend to have VERY large ranges
 - e.g. start times on the minute for a 7 day schedule
 - typically only care about
 - earliest time, or
 - latest time
 - when reasoning (not about all possible times)

Overview

- ▶ Basic Scheduling
 - tasks and precedences
- ▶ Disjunctive scheduling
 - at most one task at a time
- ▶ Cumulative scheduling
 - identical resources with limited capacity
- ▶ Sequence dependent scheduling
 - modeling order between tasks

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