NAO Planning Competition 2023

Team: Guska

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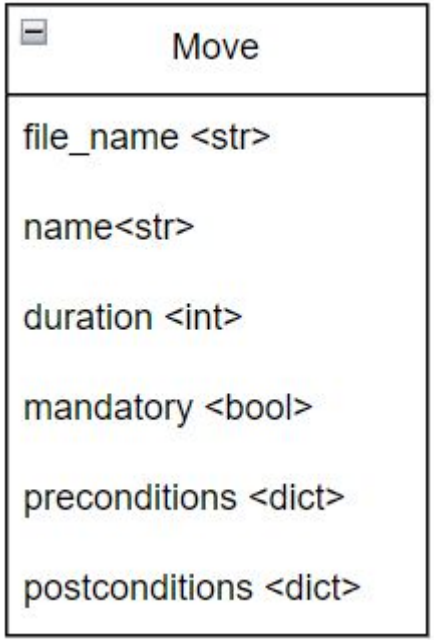
Modeling the problem

- Goal/Problem -> Plan a choreographe
- Modeling the dance moves - class Move
  - calculating duration of each move
  - Imposing pre- and post-conditions
- Modeling the planning problem:
  - States: instances of class Move
  - Actions: valid transition to a next Move
  - Path Cost = 1
  - Search strategy: Uniform cost - using AIMA library



Types of constraints

1 Mandatory positions

- specific order of mandatory positions

2 Intermediate positions

- breadth first search to find sequence of intermediate positions between mandatory positions
- compatibility between two consecutive positions moves
- avoid repeating moves

3 Time constraints

- duration of the song ~ 130s
- additional constraint to make NAO sit and say Tequila everytime the song does

Intermediate positions

Created as a Python file

- Using the naoqi library
- Example: SayText.py

Created using Choregraphe Timeline and exported as a Python file

- Create a new ‘Timeline’ Box
- Store joints in keyframes
- Exported keyframes to python
- Example: BootyShake.py

Open source .ctg files

- Sources: Funlab
- Example: Macarena.py

Thank you.
Questions?