
Rationale-based Visual Planning Monitors

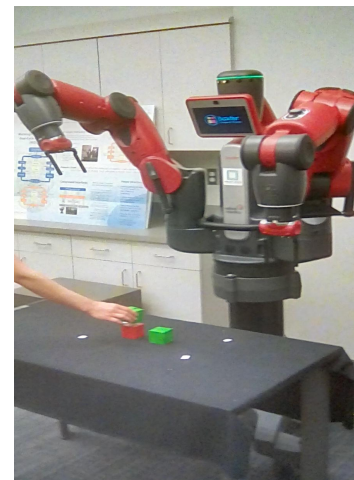
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Vision, Planning and Goal Reasoning

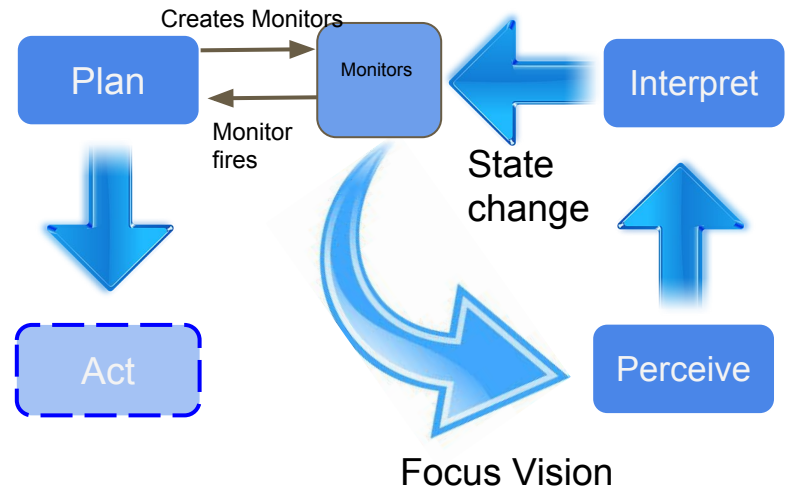
- **Research Problem**
 - Planning in dynamic environments
- **Goal monitors** and goal reasoning
 - The world may change, resulting in no goal change
 - The world may change, resulting in a new goal
 - The world may change, resulting in a different goal
- **Plan monitors** and vision
 - Provides a means of focusing visual attention on world features likely to affect the plan
 - The planner (SHOP) generates plan monitors to interact with a vision system
 - Planning determines what part of world to be monitored



Red block about to become not clear

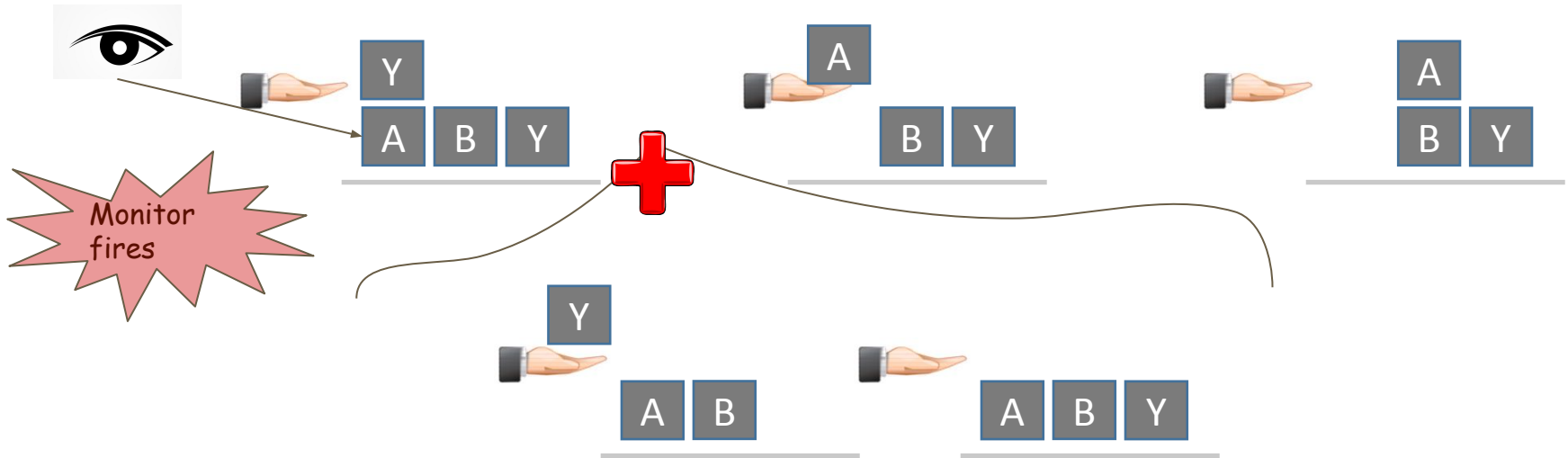
Plan Monitors

- Integrating the tasks of planning/act and interpretation/perception
- Focus on one way interaction of planning and interpretation
- Vision serves the needs of the planner
- Monitors parametrizes perception to seek some state changes
- Interpreter checks for state change
- Plan adaptation in response to changes



Add steps to the plan

Goal: on(A,B)

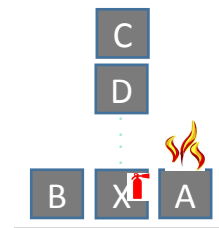
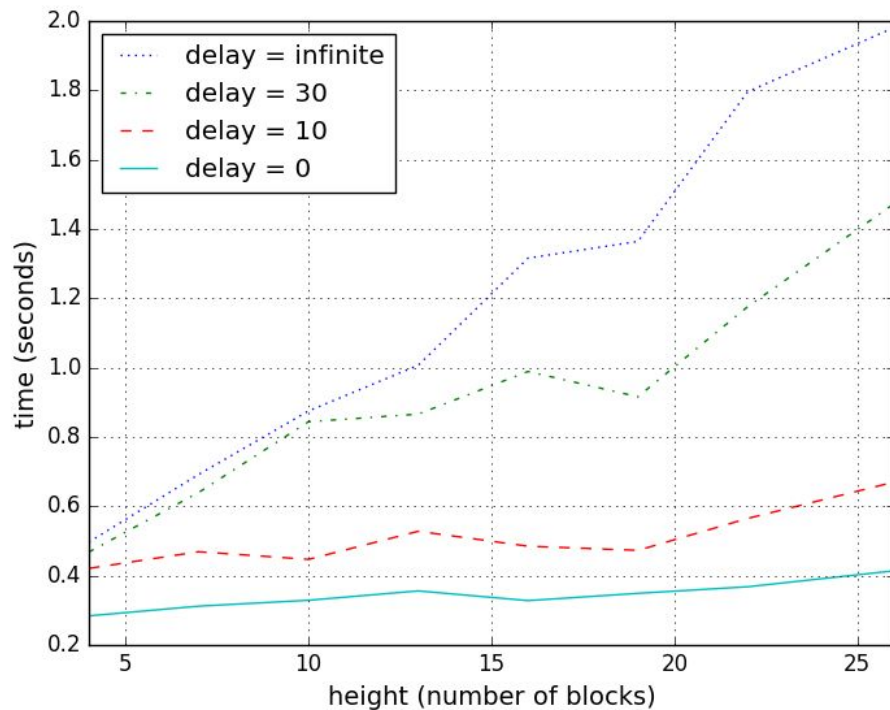


pickup(A), stack(A, B)

unstack(Y,A), putdown(Y), pickup(A), stack(A, B)

Monitor handles situation where someone places Y on A or B during planning.

Experiment on Modified Blocksworld Domain

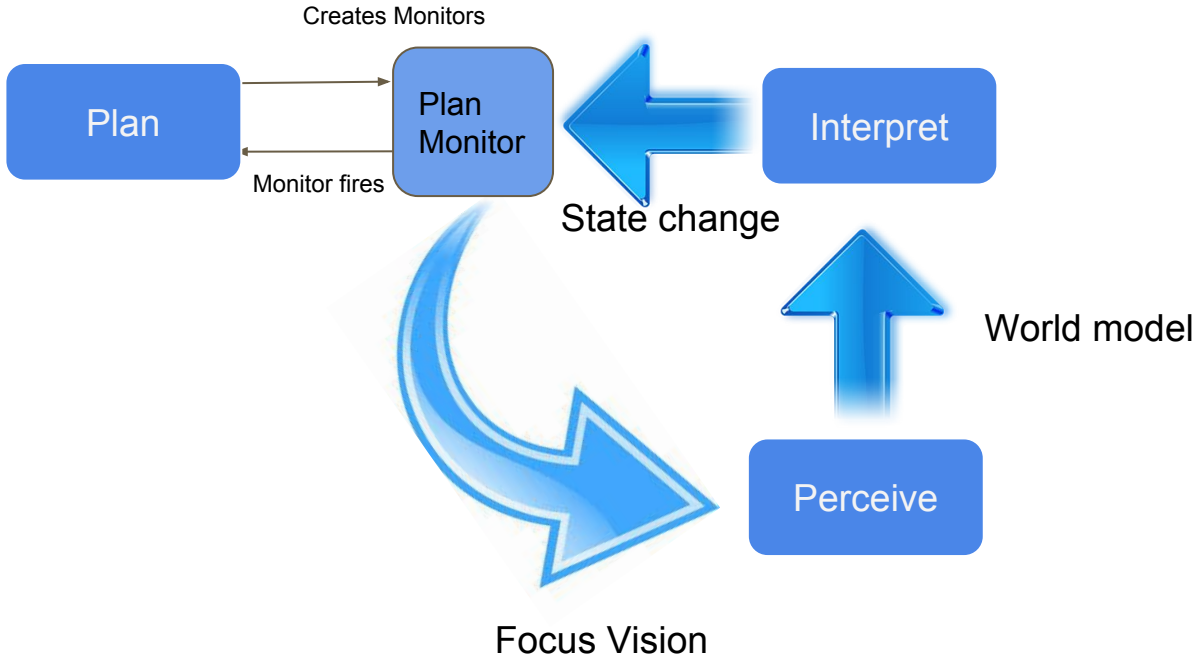


- *Goal: on(A,B)*
- *A is on fire, and fire extinguisher is inside of X.*
- *Monitor handles situation when the fire goes out during planning.*

Conclusion

- The integration of planning and interpretation in a cognitive architecture
- We showed how using vision monitors improves planning in a dynamic environment
- Future work:
 - goal monitors; Some monitors may change the goal when fired
 - Using plan monitors during execution
- Vision has an important role in supporting the intentions and actions of the agent

Extra slides



Monitors Restrict the Vision

