Blockly Programming Dataset

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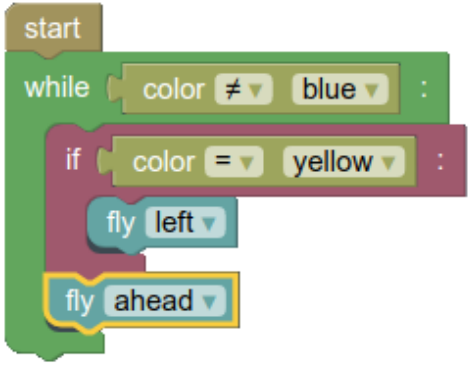
CSEDM 2019

Block-Based Programming



RoboMission

- freely available online game
- description of system behavior and data collection
- open source code
- broad range of difficulties
- 85 tasks

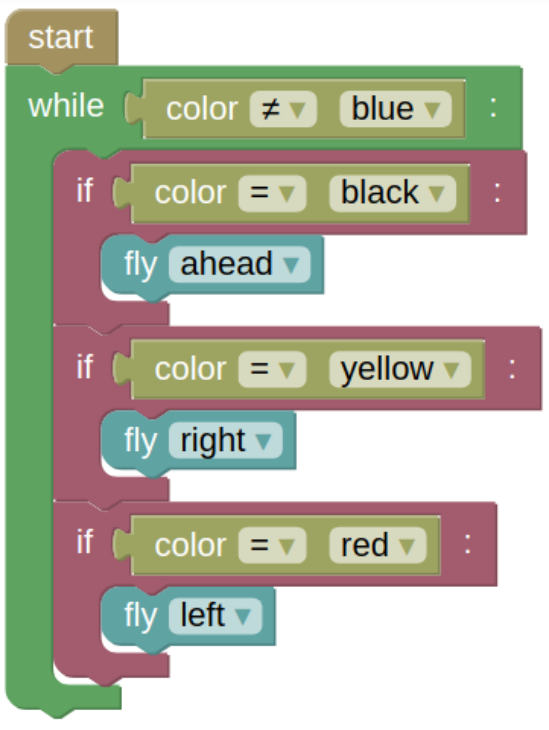
Data

- 1.4 million program snapshots (edit / execution)
- 85 000 task session (student-task pairs)
- 85 tasks
- 5 800 students

Dataset Documentation

`https://github.com/adaptive-learning/adaptive-learning-research/tree/master/data/robomission-2019-02-09`

Grid World and Code Representation



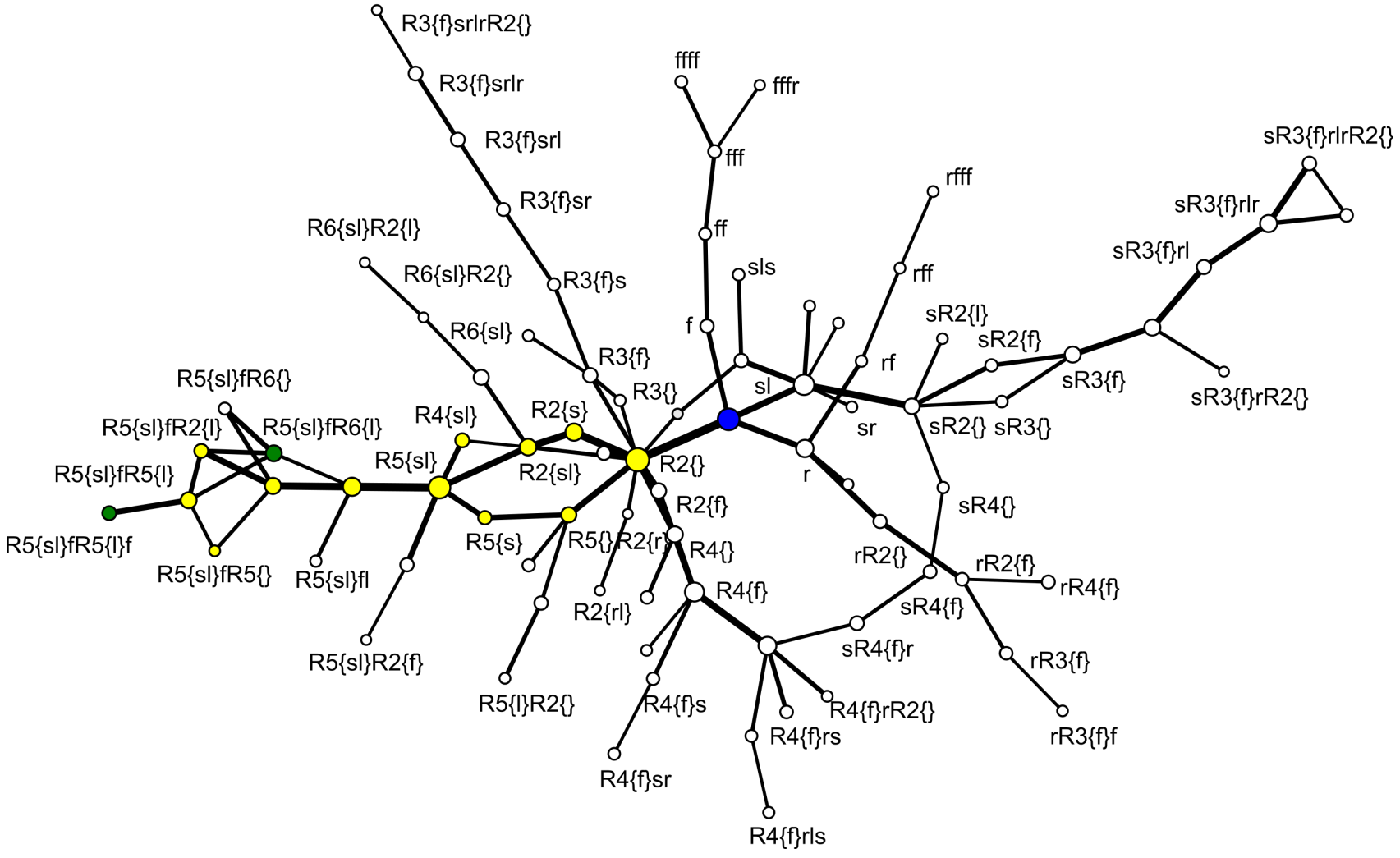
setting.fields:

```
|b |b |b |b |b |
|kA|kA|k |k |k |
|k |y |kA|kA|k |
|k |k |r |kA|kA|
|kA|kA|kA|r |k |
|k |k |y |k |k |
|k |k |kS|k |k |
```

solution:

```
W!b{Ik{f}Iy{r}Id{l}}
```

Usage Example: Exploring State Space Graphs



Usage Examples

- exploring state space graphs
- measuring similarity of programming tasks
- measuring performance on programming tasks
- measuring difficulty of programming tasks

Summary

- 1.4 million program snapshots, 85 tasks
- comprehensive data documentation
- freely available online game
- description of system behavior and data collection
- open source code

Get the Data

`https://github.com/adaptive-learning/adaptive-learning-research/tree/master/data/robomission-2019-02-09`