Implementing a Blockly Editor in MPS

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MPS Meet-up 2018
Scratch

- A language targeted primarily at children

- Draggable blocks:

  - When clicked
  - Say Hello, world!
  - Stop this script

- An educational tool with considerable traction
Scratch

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  ![Scratch blocks diagram](image)

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Vehicle definition definition:

```plaintext
name vehicle_definition
inputs
dummy input
  fields left>
    text Name
    text input default, Name

dummy input
  fields left>
    text Number of wheels
    numeric input 4, Wheels
    min 0 max Infinity precision 0

statement input CHECKLIST
  fields left>
    text checklist
    type any

automatic inputs
  top+bottom connections>
    tooltip
    help url
    top type
    bottom type
    colour
      hue: 230°
```

Vehicle definition:
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- All available blocks are in a palette
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- May waste screen estate
- Most important: few tools
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Why Blockly in MPS

- Should feel familiar to Blockly and Scratch users
  - Fast editing, autocompletion
  - Advanced code navigation and search
  - Sane variable renaming
  - Version control!
  - Go to concept, go to editor
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In Blockly, every block has an ID.

This should make conversion between Blockly and MPS Blockly lossless in both directions.

A helper language “BlocklyXML” captures the structure of the serialization format used by Blockly.

The introduction of BlocklyXML made generation much cleaner.
Conclusions and Future

- It was really easy to create a PoC implementation of a specific Blockly language in MPS.
- It was also easy to copy the major part of the semantics of the Blockly definition language.
- Perhaps, this could be a nice example for those who are learning MPS.
- The generator for the Blockly definition language is not implemented, but will be a nice exercise, as MPS concepts will have to be generated.
- Polishing and integration with the original Blockly is not yet done.
- Meta-comment: This presentation was created in Lyx, which is an awesome projectional editor for Latex.