

MPS

Are you talking my language?

Václav Pech
Developer / Evangelist



Future



Firefox ▾

My MPS tasks +

http://youtrack.jetbrains.net/issues/MPS?q=for%3A+me+%23Unresolved+order+b ☆ ↻ YouTrack 🔍 🏠 📄

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MPS-13273 Unexplained thing in tutorial. Michael Vlassiev Jul 15

0 ↑ **Normal** Bug No Fix version Submitted Vaclav Pech Unknown No Affected ve 1

MPS-13275 Tutorial pictures and menu texts should be changed for MPS 2.0 Michael Vlassiev Jul 15

0 ↑ **Normal** Bug No Fix version Submitted Vaclav Pech Unknown No Affected ve add

Found: 2 issues per page

JetBrains Issue & Bug Tracker YouTrack 3.0.4 (build #1819 [07-Sep-2011 19:48]) | [Help](#) [Feedback](#) Powered by MPS Created in [5221 ms] [Issues](#) [Comments](#)



Firefox - Messages - JetBrains Forum
http://forum.jetbrains.com/messages

JF JETBRAINS FORUM
Create Thread Messages Threads Digest

Messages

Mark all as read (46)

Meta Programming System > Calling the textgen procedure for super concept
6:39 am Evgeny Gryaznov

I'm afraid there is no way to invoke TextGen for the super concept. But if you have no `text gen` declared for the concept, the inherited one is used.

Instead you can extract text-generation code into an operation and reuse it in append clauses. Create a `LanguageTextGenDeclaration` root and declare an operation.

reply

Meta Programming System > Problems with custom MPS build
5:57 am Alexey Pomelov

Hello,

I'm using MPS 2.0.1 and trying to create the custom MPS build for my language.

I've created "Custom MPS Build Script" according to the user guide, selected `buildTools.zip`. The first issue is here:

```
build tools no macro/E:/Distr/.../MPS-2.0.1
```

Error marker is here: "Error: Path to MPS-buildTools.zip is not valid".

Firefox - Threads - JetBrains Forum
http://forum.jetbrains.com/threads

JF JETBRAINS FORUM

Threads

Mark all as read (45)

Problems with custom MPS build
Views: 3
Alexey Pomelov, last by Evgeny Gryaznov 6:54 am 1 new 1
5:57 am Meta Programming System

Calling the textgen procedure for super concept
Views: 6
Alexey Pomelov, 3:27 am last by Evgeny Gryaznov 6:39 am 1
Meta Programming System

Creating new root nodes from generator pre-processing script
Views: 12
Alexander Kosenkov, Sep 23 last by Evgeny Gryaznov Sep 25 3 new 3
23 Meta Programming System / generator mapping script

Smart reference expansion doesn't work in completion menu when concept property 'alias' is declared
Views: 20
Dmitry Ivanov, Sep 23 last by Dmitry Ivanov Sep 23 2 new 2
Meta Programming System / reference name

reference constraint - index in parent
Views: 22

Science - Math, Biology, ...

The image displays two side-by-side screenshots of the JetBrains MPS 2.0.1 IDE, illustrating the modeling of biological experiments.

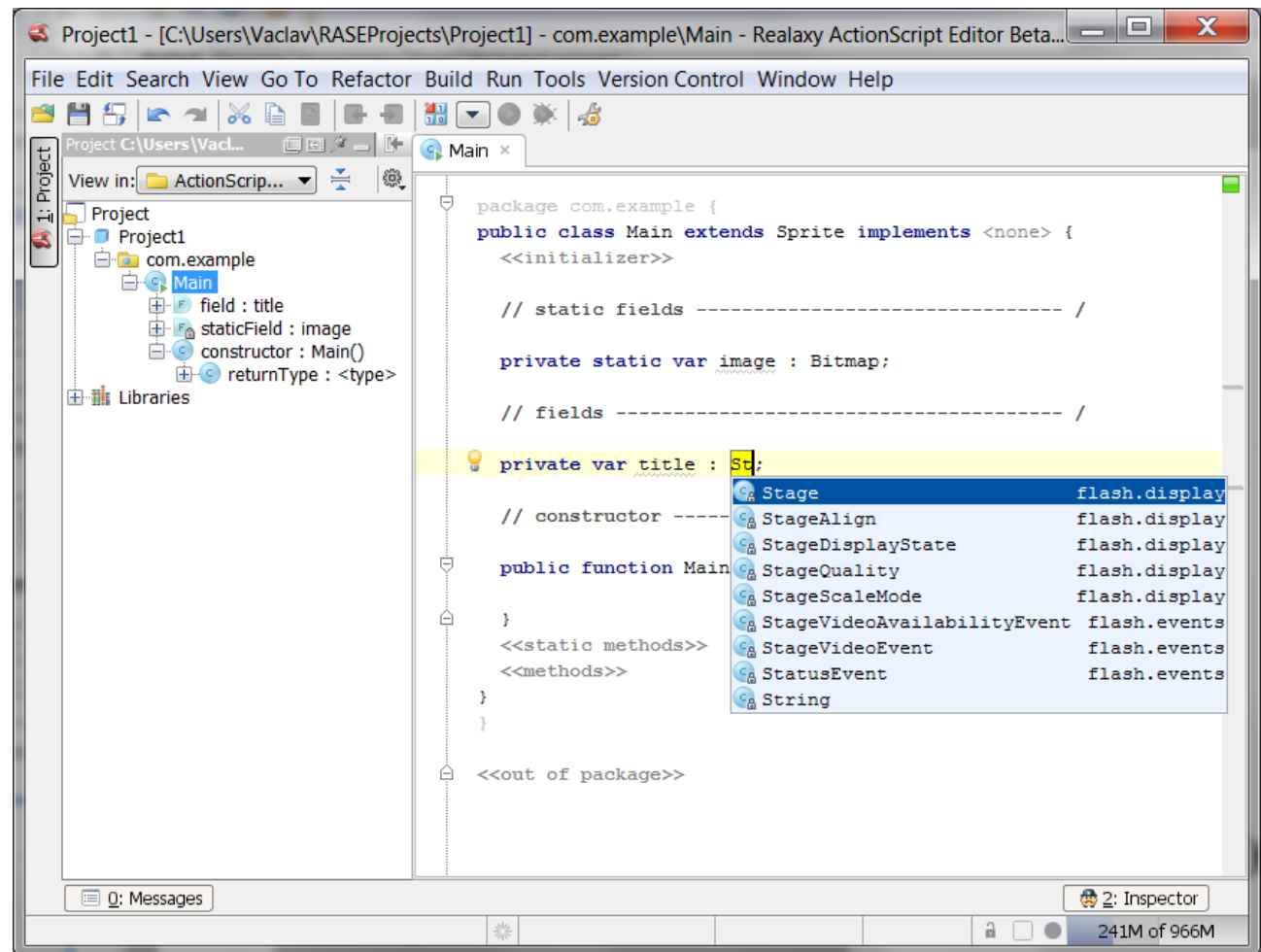
Left Screenshot: Tabacum Model

- Project Structure:** Shows a project named 'biology' with a sub-project 'Tabacum'. The structure includes various biological entities like 'Arrays', 'Compounds', 'Genes', 'OrganismParts', 'OrganismType', 'Proteins', 'SmallMolecules', 'Seeds', 'Tabacum from seeds', 'germinate', 'inoculate', 'watering', 'Sample2', 'Sample4', 'Salt', 'Salt control', 'Cormorant', 'Cormorants', 'IQ Measurement', 'cut beak', 'ontology', 'model', 'Article', 'DNA extraction', 'Homogenization', 'PCR', and 'Tabacum'.
- Model Content:** The main editor shows the 'Tabacum' model with the following details:
 - creation date:** <no date>
 - protocol:** Tabacum
 - samples:** A table with columns 'Sample Name' and 'Sample Kind'. The table contains three rows: 'S1', 'S2', and 'S3'.
 - input:** << ... >>
 - date:** 17.9.2011 **description:** Homogenization <- Plants : S1, S2, S3
 - date:** 17.9.2011 **description:** DNA Extraction <- Plants: S1, S2, S3
 - date:** 17.9.2011 **description:** PCR <- Plants: homogen.DNA : S1, S2, S3

Right Screenshot: Cormorants Model

- Project Structure:** Shows a project named 'biology' with a sub-project 'Cormorants'. The structure includes various biological entities like 'Arrays', 'Compounds', 'Genes', 'OrganismParts', 'OrganismType', 'Proteins', 'SmallMolecules', 'Seeds', 'Tabacum from seeds', 'germinate', 'inoculate', 'watering', 'Sample2', 'Sample4', 'Salt', 'Salt control', 'Cormorant', 'Cormorants', 'IQ Measurement', 'cut beak', 'ontology', 'model', 'Article', 'DNA extraction', 'Homogenization', 'PCR', and 'Tabacum'.
- Model Content:** The main editor shows the 'Cormorants' model with the following details:
 - protocol:** Cormorants << ... >>
 - input:** << ... >>
 - group input:** group Cormorant { type organism subgroups: << ... >> }
 - blocks:**
 - treatment block to cut beak** [treatment protocol cut beak sample input: cormorant <- protocol input . Cormorant treatment parameters for sample: << ... >> treatments: << ... >> sample output: -> cutted cormorant beak] <no description>
 - observing measurement block iq measurement** [measurement protocol IQ Measurement sample input: Cormorant <- to cut beak . cutted cormorant beak measurement result: iq -> iq] <no description>
 - output:** iq <- iq measurement . iq
 - description:** cutted!

Realaxy



Karel

The screenshot displays the Karel programming environment. On the left is a 15x15 grid world. Red squares represent walls, forming a border and an internal structure. A robot named Karel, represented by a grey square with a black arrow, is positioned at the intersection of the 5th column and 5th row. Two small white squares with the number '1' are located at (7, 3) and (7, 5). On the right, a code editor window titled 'Karel' shows the following script:

```
Script Karel runs as
require Common

turnRight
while not mark do
  traceStep
end
pick

# Routine definitions
routine traceStep means
  drop
  safeStep
end

routine safeStep means
  while wall ahead do
    turnLeft
  end
  step
end

routine turnRight means
  repeat 3 times
    turnLeft
  end
end

routine turnAround means
  turnLeft
  turnLeft
end

end
```

The bottom status bar includes icons for 'Run', 'Version Control', 'Changes', and 'Messages', along with the text 'Git: master'.

High thoughts must have high language.

Aristophanes



```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML
2 <html xmlns="http://www.w3.org/1999/xhtml" la
3 <head>
4 <title>JetBrains :: World's Leading Vendor of
5 <meta name="robots" content="all" />
6 <meta name="copyright" content="JetBrains, In
7 <meta http-equiv="Content-Type" content="text
8 <meta name="verify-v1" content="9EryFSFvvHuIK
9 <meta name="google-site-verification" content:
10 <meta class="local" name="description" conte
```


Grails

```
Customer.findAllByNameAndAgeBetween('Joe', 20, 40)
```

```
class Phone {  
    ....  
    static belongsTo = [owner : Person]  
}
```

Cypher for Neo4j

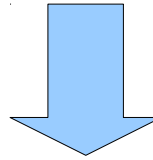
```
START john=node:node_auto_index(name = 'John')  
MATCH john-[:friend]->()-[:friend]->fof  
RETURN john, fof
```

JMock

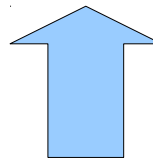
```
context.checking(new Expectations() {{  
    oneOf (clock).time(); will(returnValue(loadTime));  
    oneOf (clock).time(); will(returnValue(fetchTime));  
  
    allowing (reloadPolicy).shouldReload(loadTime,  
                                           fetchTime); will(returnValue(false));  
}});
```



DSLs

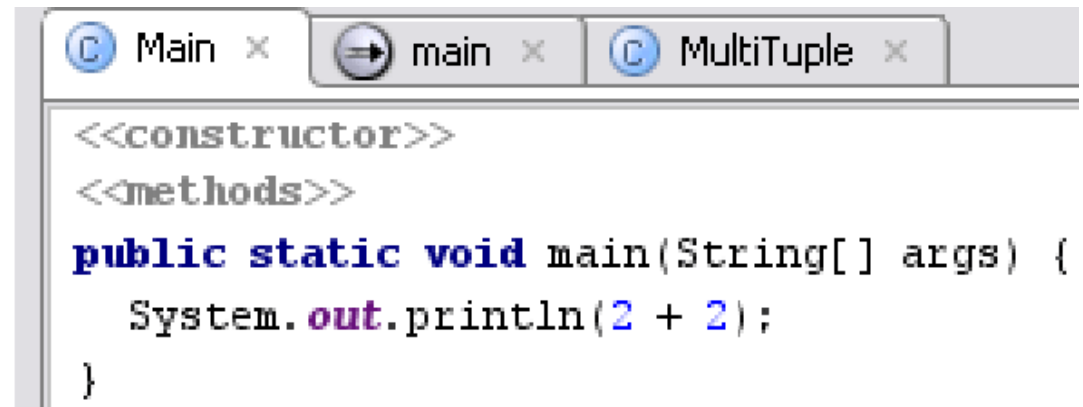
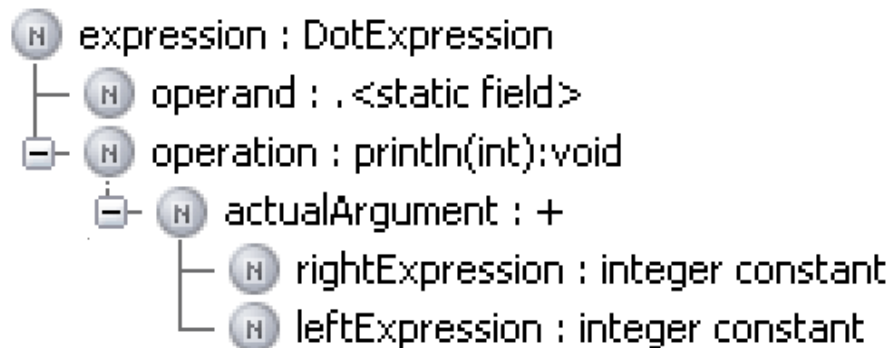


MPS IDEs



General Purpose Langs

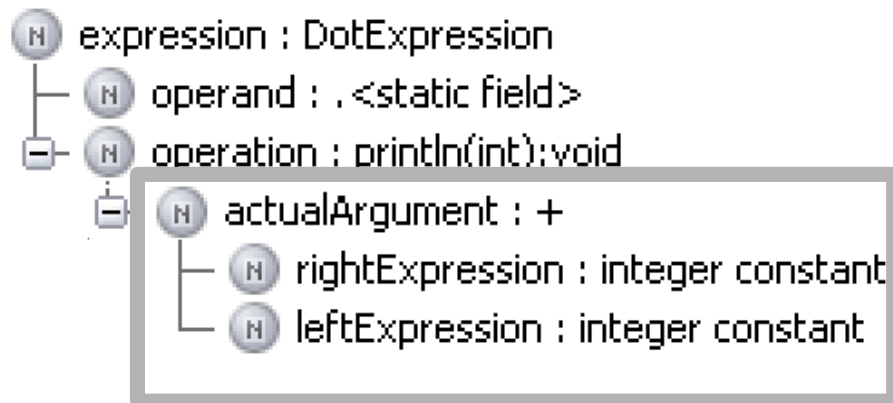
Abstract Syntax Tree



```
<<constructor>>
<<methods>>
public static void main(String[] args) {
    System.out.println(2 + 2);
}
```

The screenshot shows a Java IDE with three tabs: `Main`, `main`, and `MultiTuple`. The `main` tab is active, displaying the source code for the `main` method. The code is as follows:

Abstract Syntax Tree



```
<<constructor>>
<<methods>>
public static void main(String[] args) {
    System.out.println(2 + 2);
}
```

The screenshot shows a code editor with three tabs: `Main`, `main`, and `MultiTuple`. The `main` tab is active. The code in the `main` method is `public static void main(String[] args) { System.out.println(2 + 2); }`. The expression `2 + 2` in the `println` statement is highlighted with a gray box.

Projectional editing challenges

The coding experience is different

Cooperate with the existing text tool-chain

Goals

Modularized languages

Advanced DSLs

Code generation

Collections

```
cities.where({~it => it.startsWith("P"); })  
      .select({~it => it.toUpperCase(); })
```

```
cities.any({~it => it.size() > populationLimit; })
```

Closures

```
{int => long} fact = {int n =>  
  if (n == 1) {  
    return 1L;  
  } else {  
    return n * invoke(n - 1);  
  }  
};
```

Date/Time

datetime **start** = now in (Europe/Berlin);

.....

period **processingTime** = now in (Europe/Berlin) – start;

datetime **meeting** = now in (GMT) + 2 days

with (hours = 11)

with (minutes = 0)

with (seconds = 0)

And a lot more

Tuples

Regular expressions

Builders

XML processing

Unit testing

Custom operators

And others ...

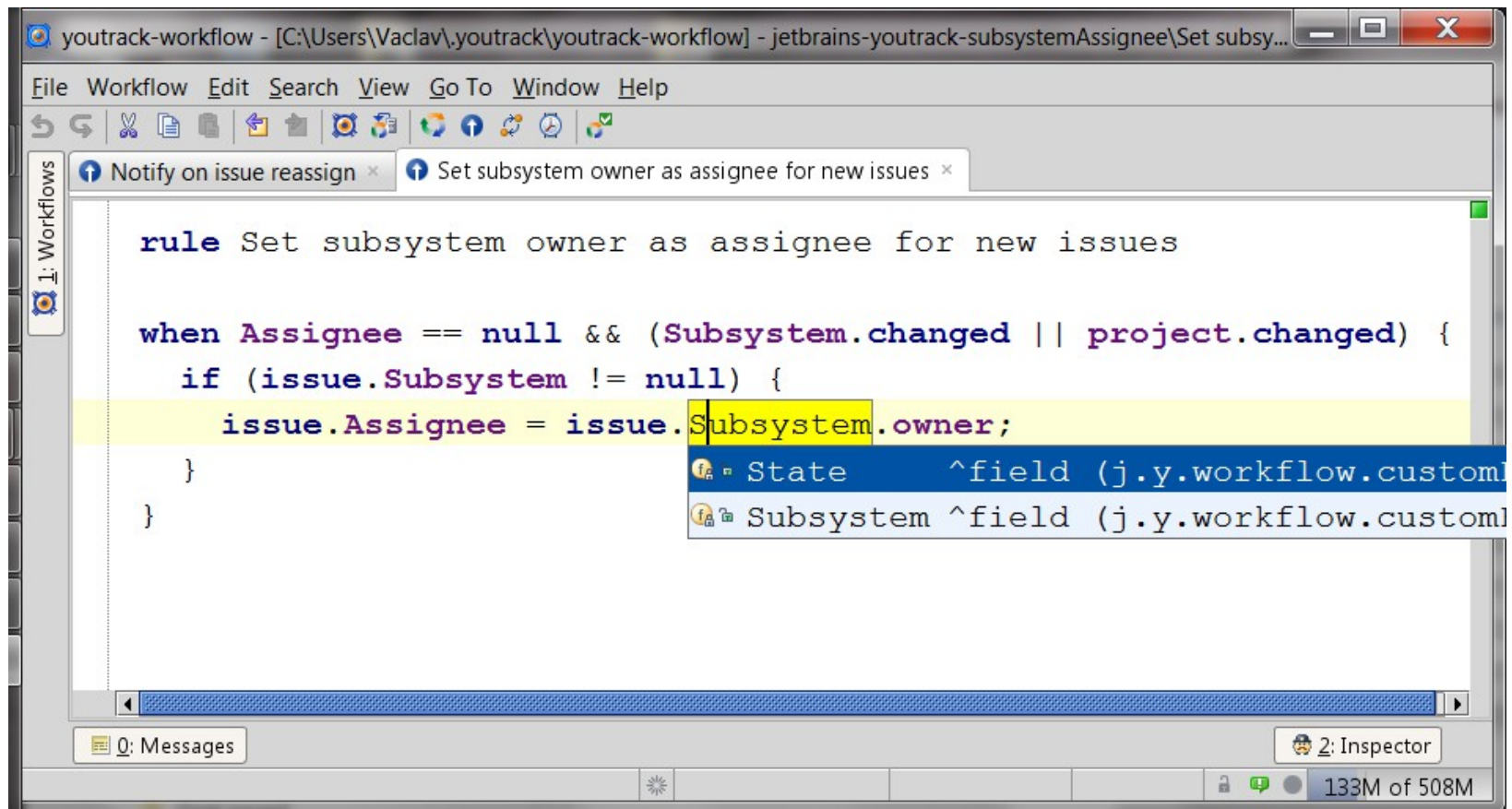
Goals

Modularized languages

Advanced DSLs

Code generation

YouTrack WorkFlow Editor



+1 to vote



● [REDACTED]
08 Oct 2012 10:42
3 months ago

+1



● [REDACTED]
08 Oct 2012 11:19
3 months ago

+1



● [REDACTED]
08 Oct 2012 12:00
3 months ago

+1



● [REDACTED]
08 Oct 2012 13:08
3 months ago

+1 that's cool)

+1 to vote

```
rule Plus one comments increments vote

when comments.added.isNotEmpty {
  var commentText = comments.added.first.text;
  if (commentText.startsWith("+1", opts)) {
    loggedInUser.voteIssue(issue);
    if (votes.changed) {
      message("
        Your +1 comment has been added as a vote. Next time you can click on the Vote button at the top. Thanks!");
    }
  }
}
```

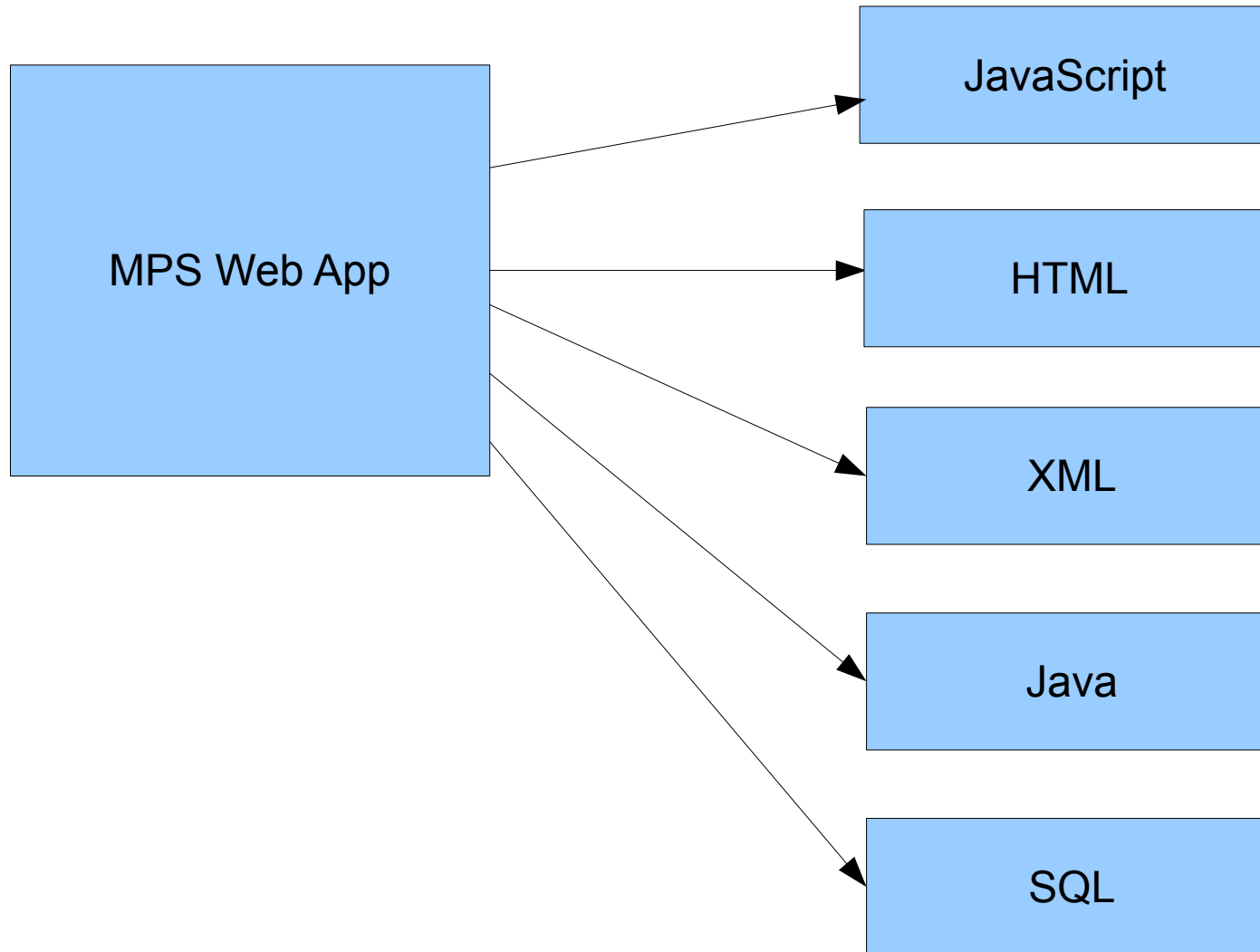
Goals

Modularized languages

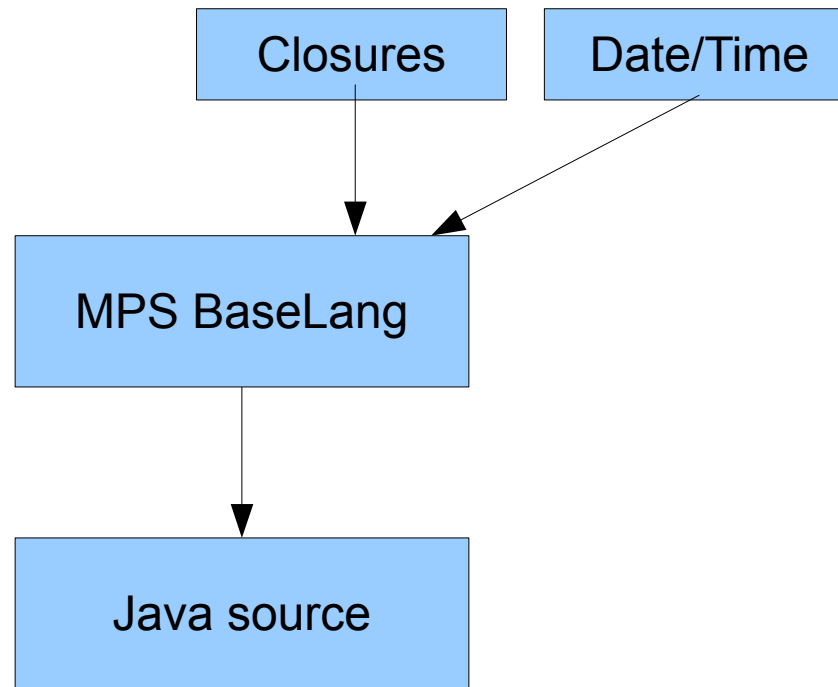
Advanced DSLs

Code generation

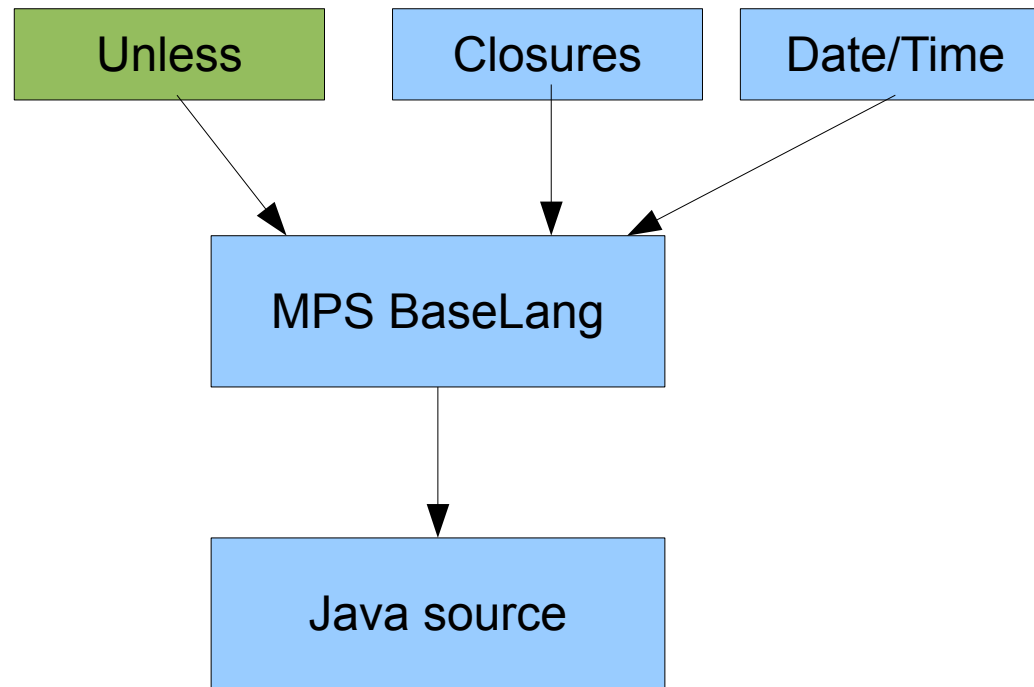
Webr



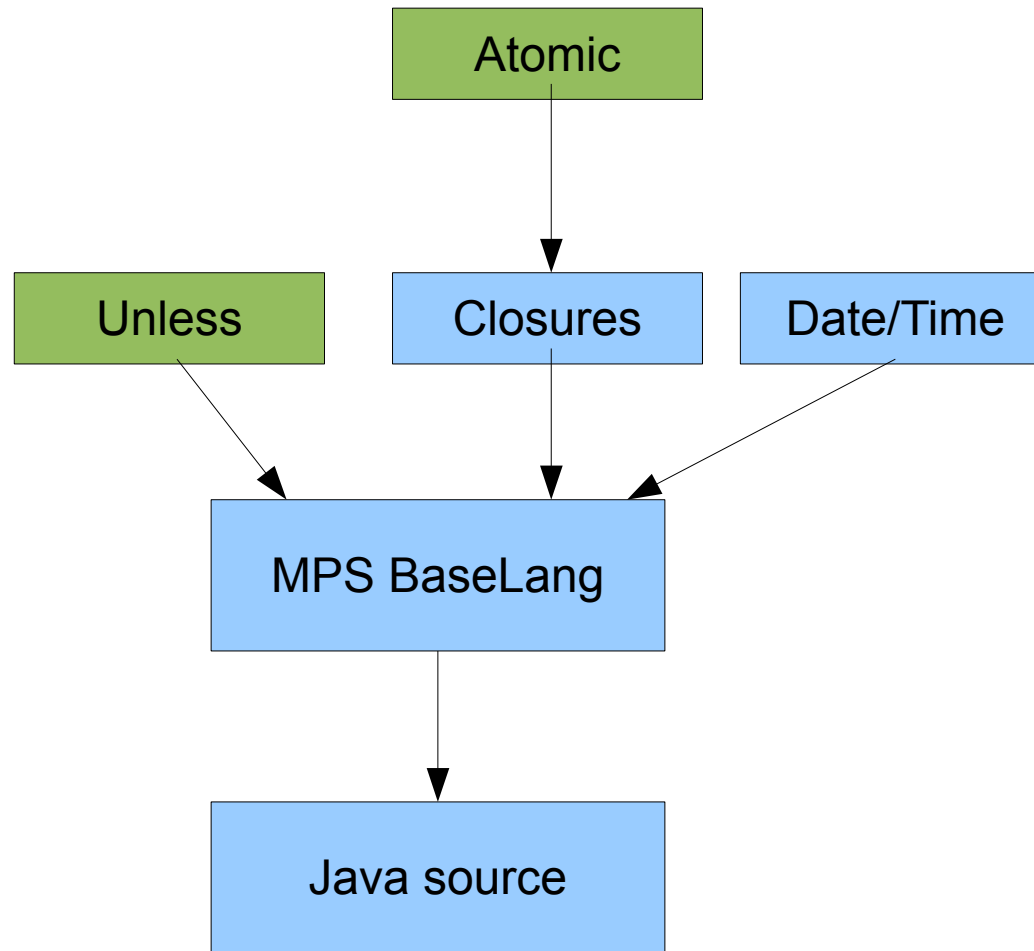
Stacking generators

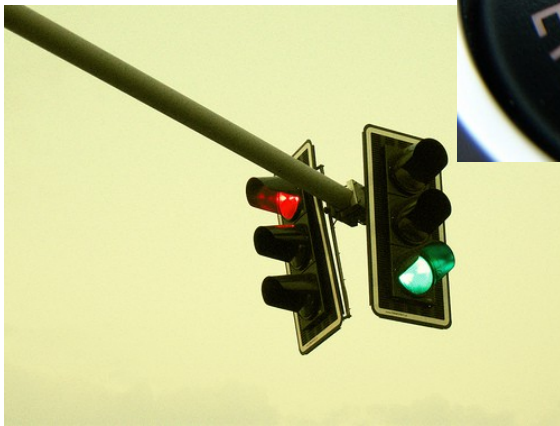


Stacking generators



Stacking generators





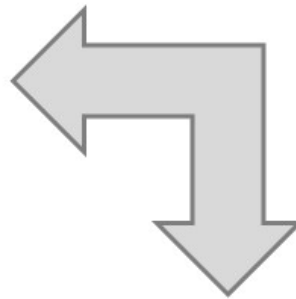
mbeddr.com

```
var avg(int, 10) currentSonar = 250;
```

```
doc State machine to manage the transition between
```

```
statemachine linefollower {  
  event initialized;  
  event bumped;  
  event blocked;  
  event unblocked;  
  initial state initializing {  
    initialized [true] -> running  
  }  
  state paused {  
    entry int16 i = 1;  
    unblocked [true] -> running  
  }  
  state running {  
    blocked [true] -> paused  
    bumped [true] -> crash  
    unblocked [true] -> crash  
  }  
  state crash {  
    initialized [true] -> paused  
  }  
}
```

```
initialize {  
  ecrobot set light sensor active(
```



```
var avg(int, 10) currentSonar = 250;
```

linefollower	initializing	paused	running	crash
initialized	true	running		true
bumped			true	crash
blocked			true	paused
unblocked		true	running	true

```
initialize {  
  ecrobot_set_light_sensor_active(SENSOR_PORT_T::NXT_PORT_S1);
```

jetbrains.mps.Launcher

Architectural – mbeddr.tutorial – [~/Documents/mbeddr/mbeddr.core/code/applications/tutorial]

File Edit View Navigate Code Analyze Build Run Tools VCS Window Help

Logical View Components StateMachines Architectural mbeddr Visualization

Project

- config
- external
- Components
- ComponentsSRI
- DataStructures
- FunctionPointers
- LibraryAccess
- Main
- RuntimeVariability
- StateMachines
- StaticVariability
- newLanguages
- plainC
- req (generation required)
- Architectural
- FlightJudgementRules
- mbeddr.tutorial.typesystemtests
- mbeddr.tutorial.blocks
- mbeddr.tutorial.complex
- mbeddr.tutorial.foreach
- mbeddr.tutorial.heap
- mbeddr.tutorial.metadata
- mbeddr.tutorial.osconfig

mbddr Visualization

statechart

```
graph TD
    Start(( )) --> beforeFlight
    beforeFlight -- "next [tp->alt > 0m]" --> airborne
    beforeFlight -- "reset" --> beforeFlight
    airborne -- "next [tp->speed > 200mps]" --> crashed
    airborne -- "next [tp->alt == 0m && tp->speed == 0mps]" --> landing
    crashed -- "next [tp->alt == 0m && tp->speed == 0mps]" --> landing
    landing -- "next [tp->speed > 100mps]" --> beforeFlight
    landing -- "reset" --> beforeFlight
    landing -- "next [tp->speed == 0mps]" --> landed
    landed -- "reset" --> beforeFlight
```

mbddr TODO

0 TODO items found

9: Changes Version Control mbeddr TODO 0: Messages 3: Usages

47 changes committed: worked on the urls for diagrams (23 minutes ago)

Git: master 734M of 1174M

Grasp the subject, the words will follow.

Cato the Elder

Questions



Want more?

<http://www.jetbrains.com/mps>

<http://jetbrains.dzone.com>

vaclav@jetbrains.com

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