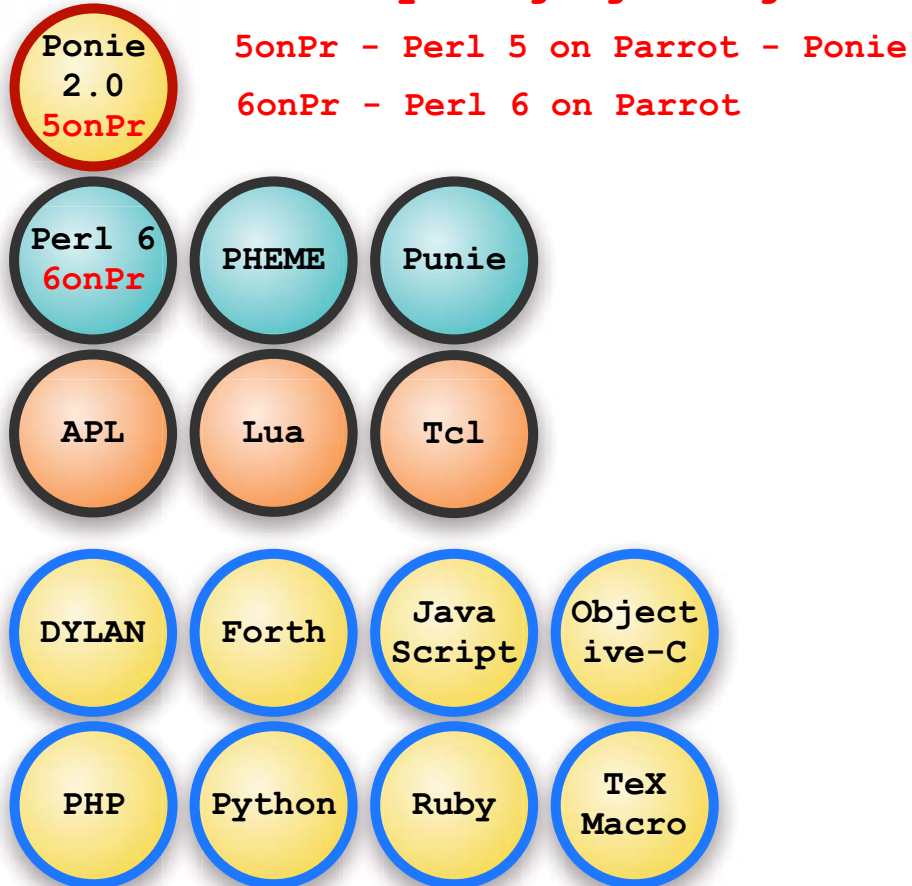


## Pugs Language/Compiler Overview

### Primary Language Targets



### Parrot VM targets Parrot is a PolyGlott

<http://svn.perl.org/parrot/trunk/languages/>



No current location



Described herein and in the svn below



[http://svn.perl.org/parrot/trunk/languages/\\*](http://svn.perl.org/parrot/trunk/languages/*)



FUTURE



PRESENT



PAST

## Pugs Language Overview



**Perl 6 on Haskell - Pugs**



**Perl 6 on Perl 5 - CPAN to PUGS**

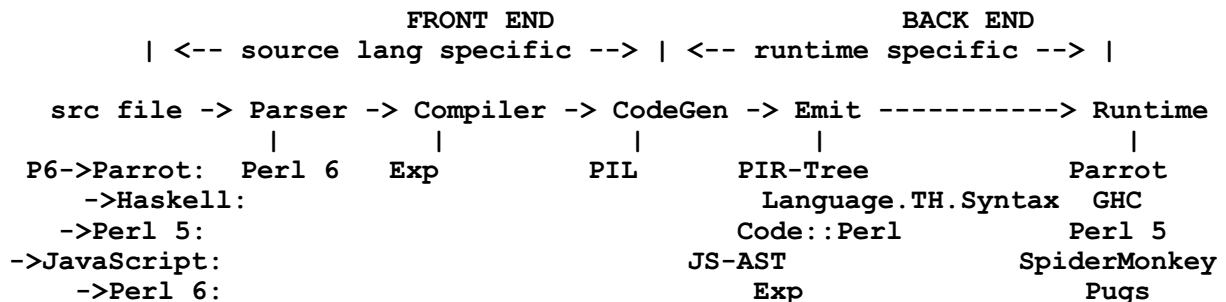


**Perl 6 on JavaScript - Pirate**



**Perl 6 on Perl 6**

Code will flow through several phases inside Pugs, as follows:



URL for Pugs plan =>

**<http://svn.openfoundry.org/pugs/doc/notes/plan>**



No current location



**FUTURE**



Described herein and in the svn below



**PRESENT**

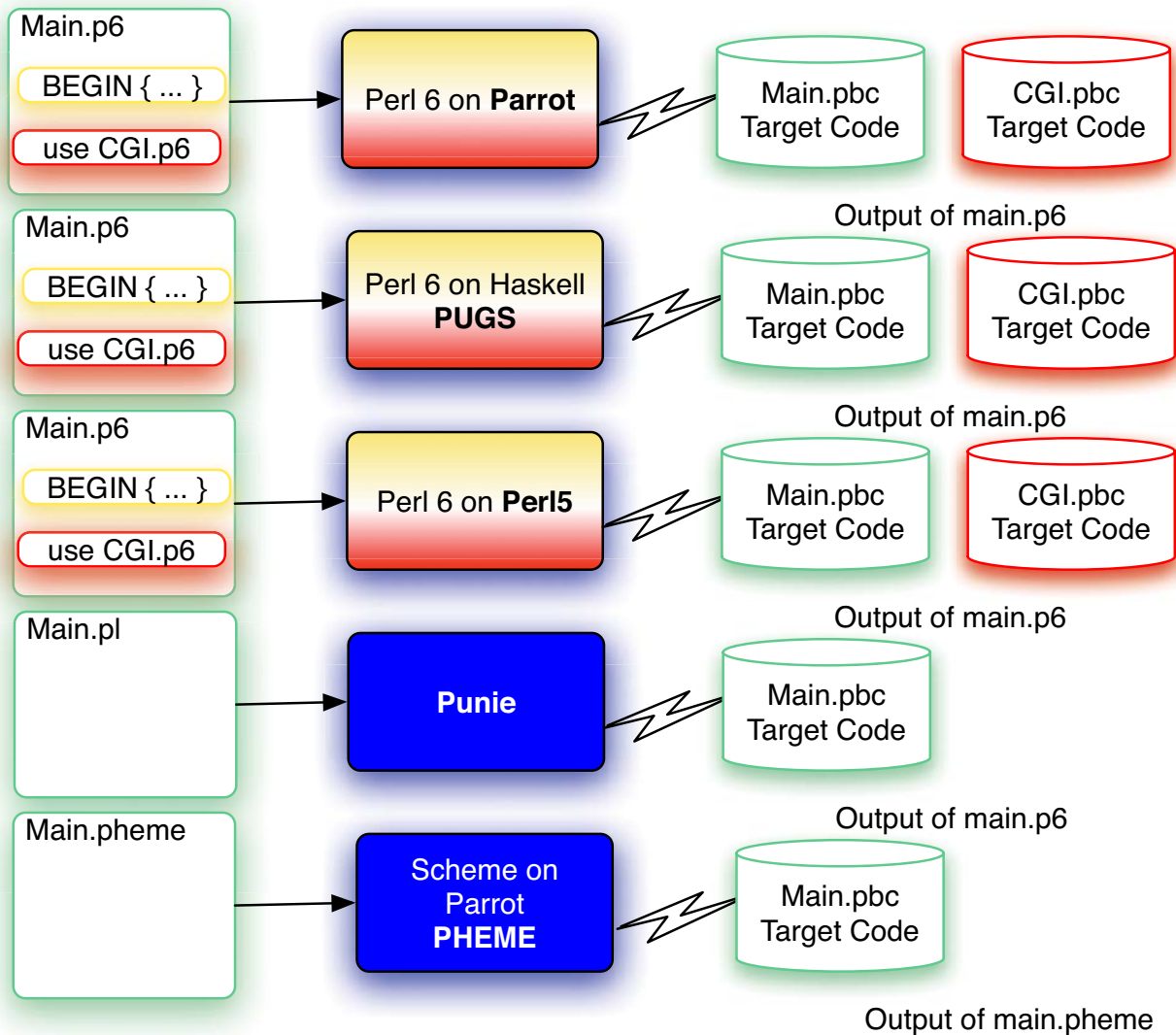


<http://svn.perl.org/parrot/trunk/languages/>\*



**PAST**

## Perl 6 Compilation Overview



**GOAL 1:**  
Demonstrate the  
**Doctrine of separate compilation**

**Goal 2:**  
Demonstrate the defining feature of Perl  
**Interleaved Parse Execution Cycle**

**GOAL 3:**  
Demonstrate quantity of differentiated  
parsers

**GOAL 4:**  
Demonstrate the benefits of the  
Tree Grammar Compiler

**GOAL 5:**  
Demonstrate specifics of the Tree  
Grammar compilation

5

4

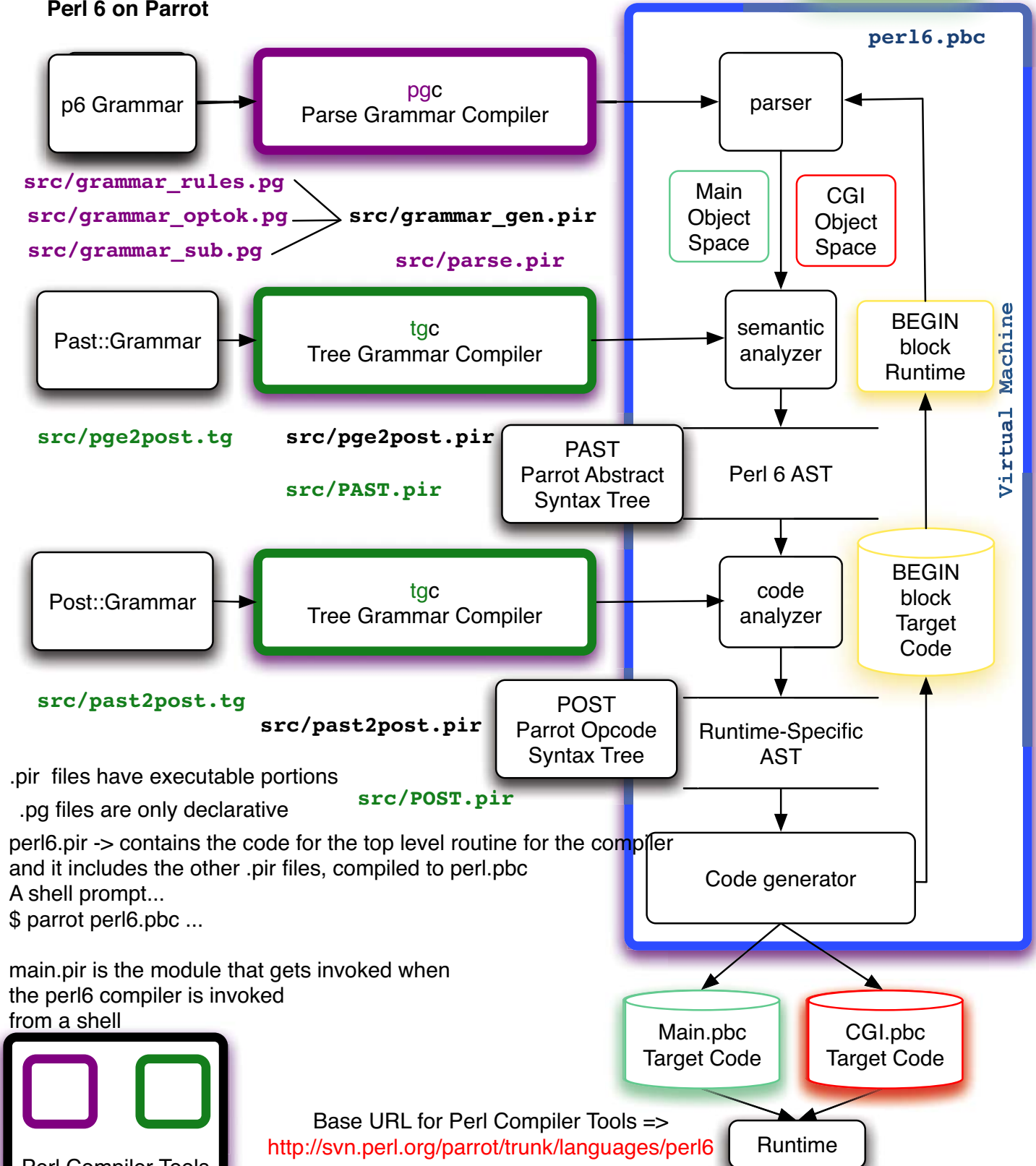
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Main.p6

BEGIN { ... }

use CGI.pm

## Perl 6 on Parrot



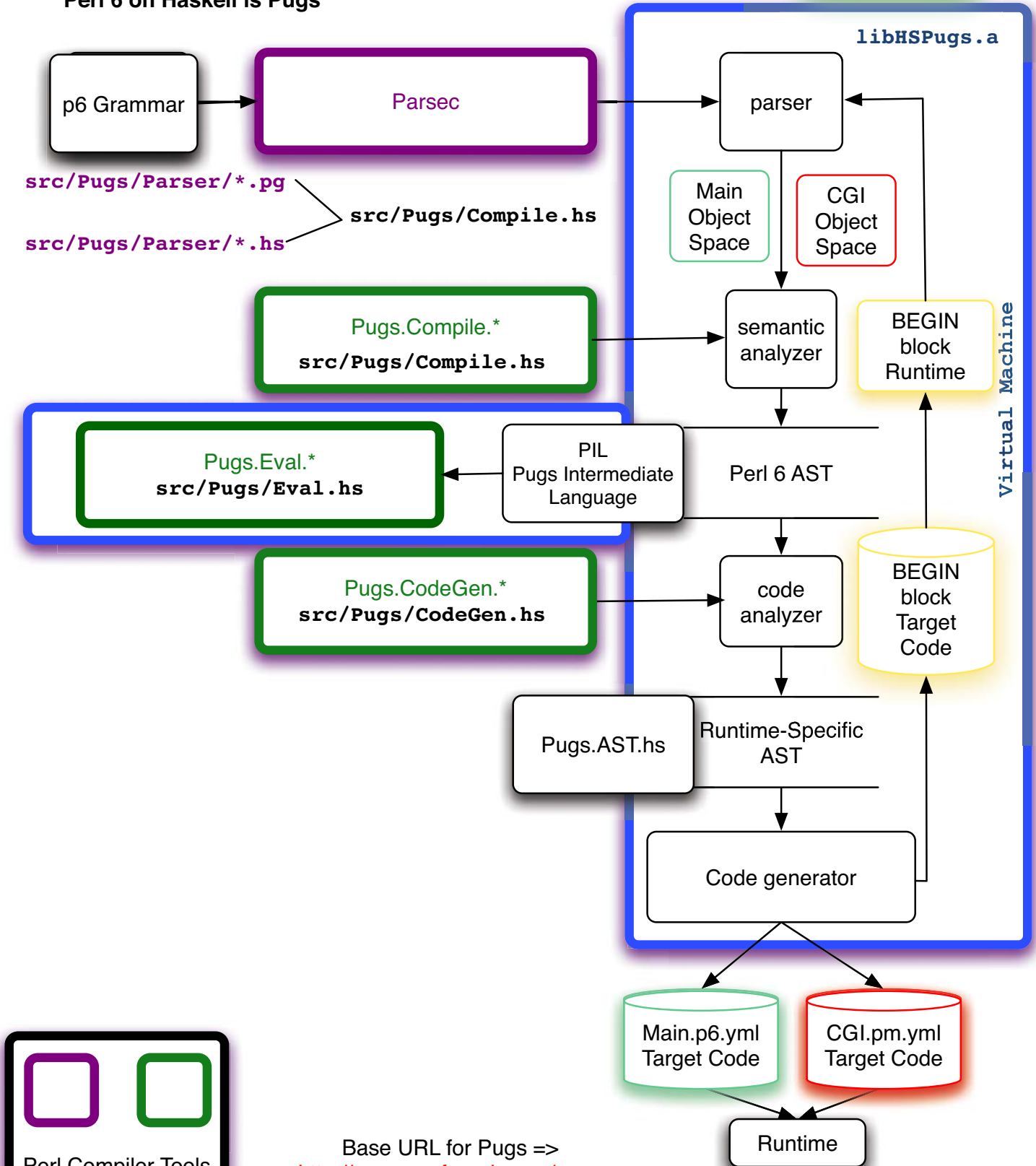
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Main.p6

BEGIN { ... }

use CGI.pm

## Perl 6 on Haskell is Pugs



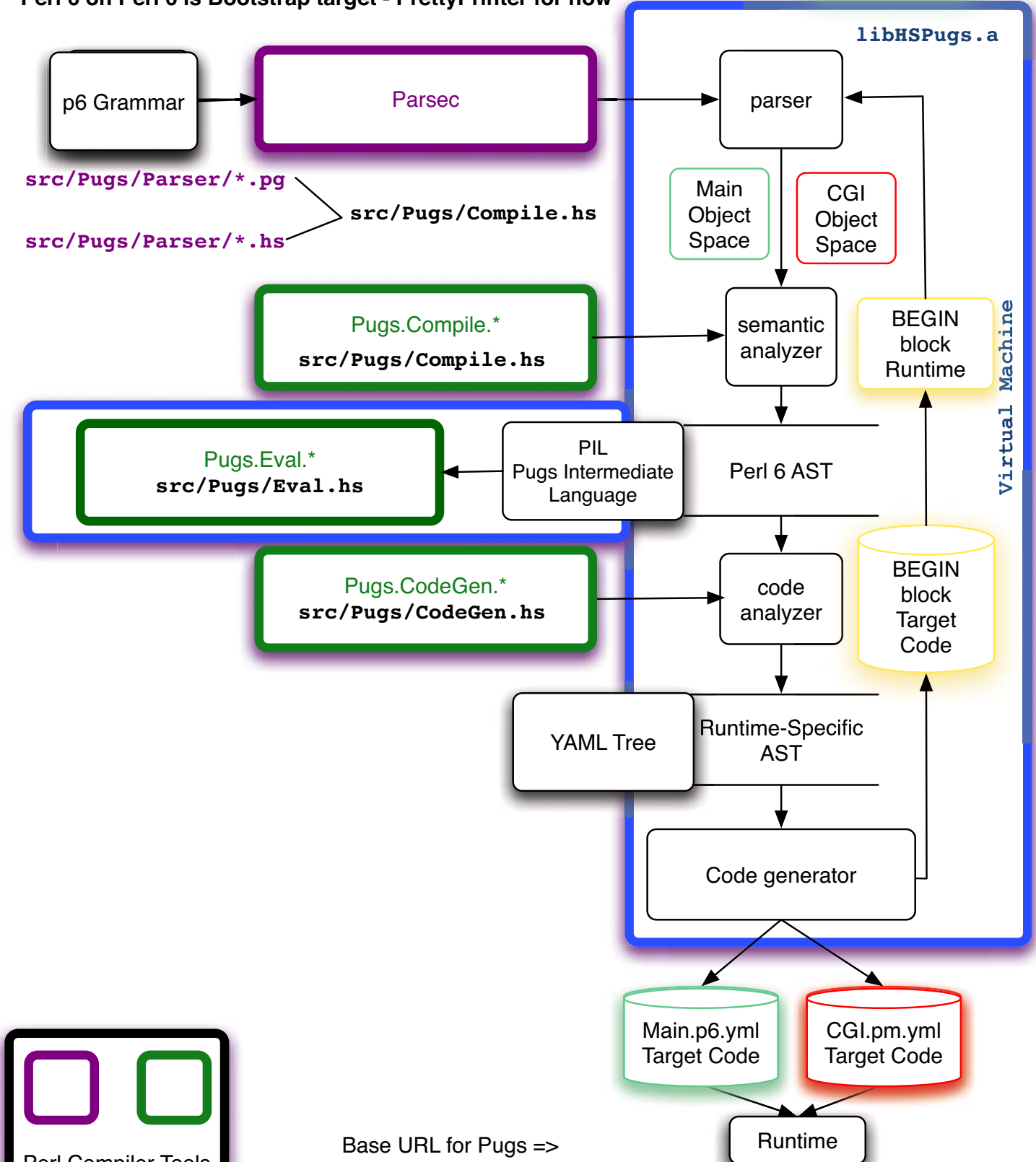
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Main.p6

BEGIN { ... }

use CGI.pm

Perl 6 on Perl 6 is Bootstrap target - PrettyPrinter for now



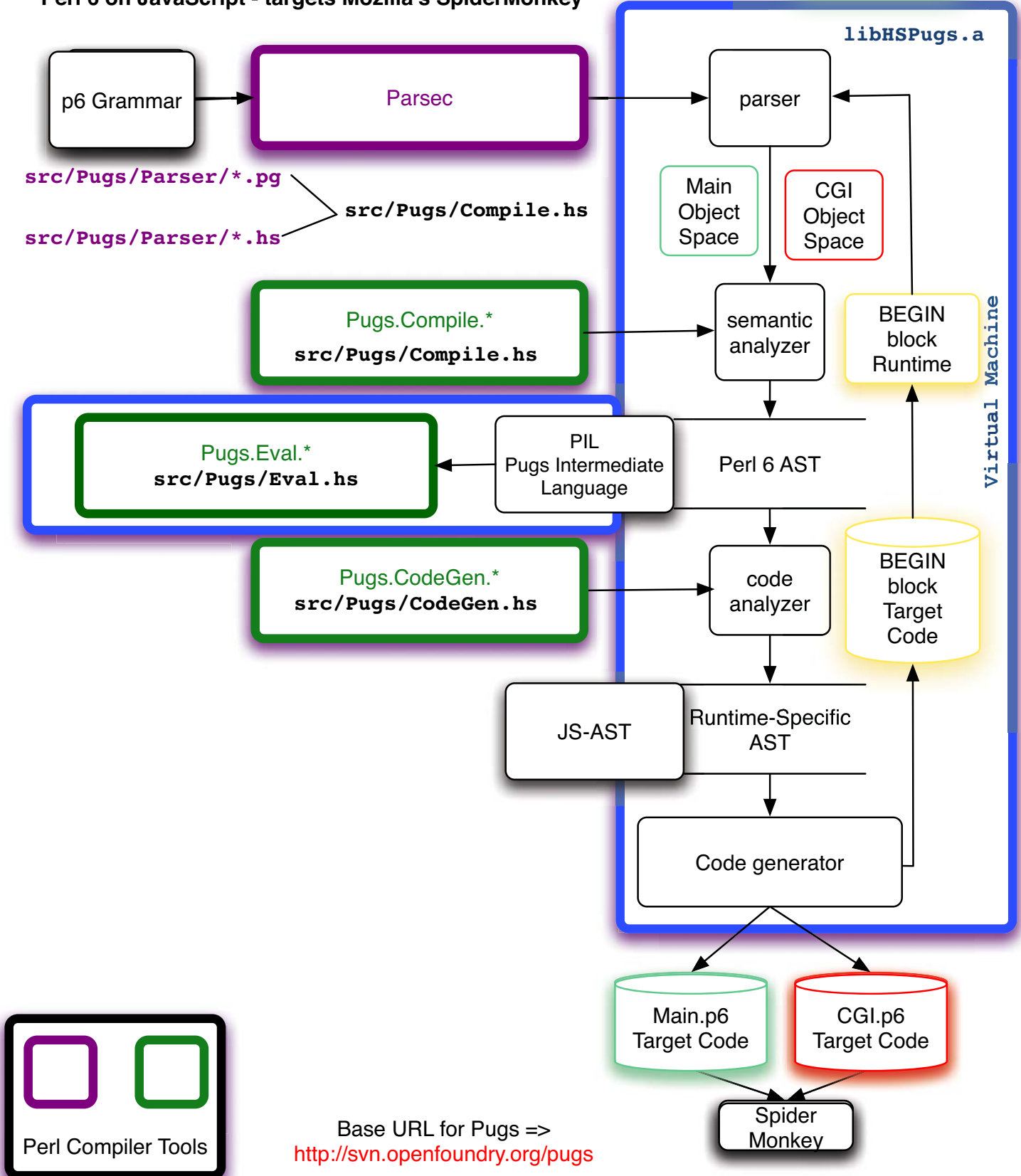
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Main.p6

BEGIN { ... }

use CGI.pm

## Perl 6 on JavaScript - targets Mozilla's SpiderMonkey





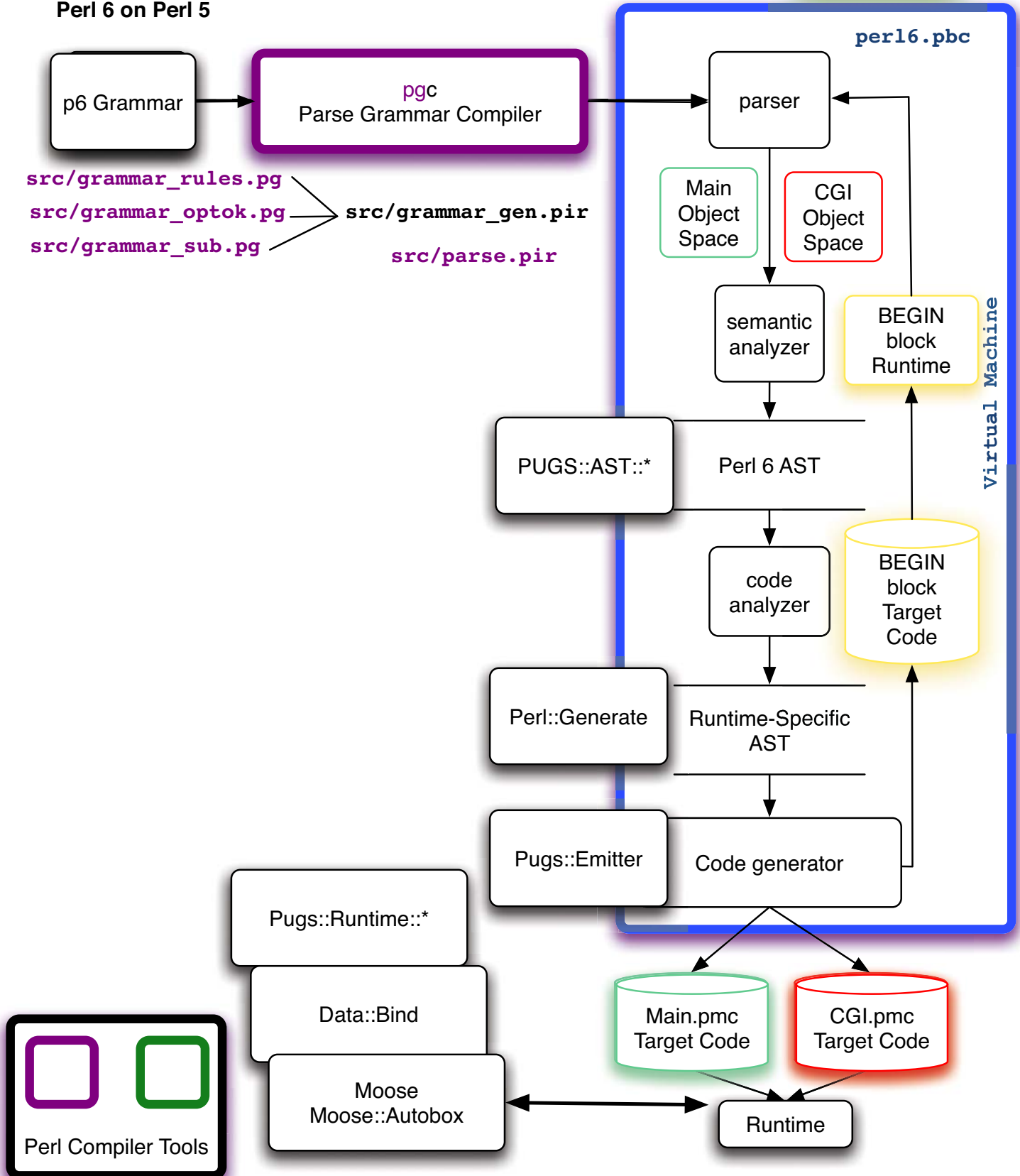
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Main.p6

BEGIN { ... }

use CGI.pm

## Perl 6 on Perl 5



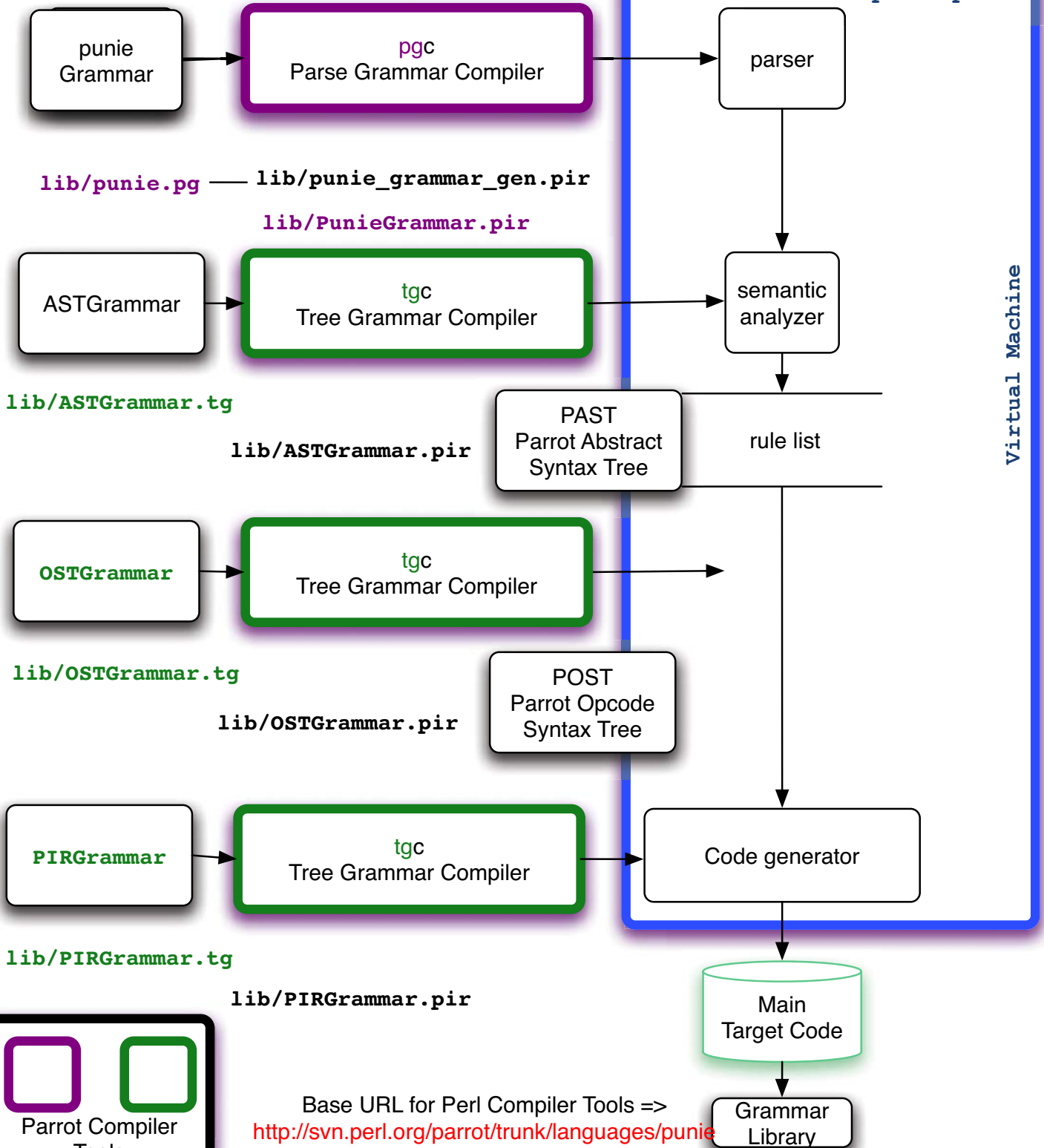


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grammar.tg

## Punie

punie.pbc



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source  
[.pHEME]

## PHEME (Parrot based Scheme)

**lib/pHEME\_compiler.pir**

pHEME  
Grammar

**pgc**  
Parse Grammar Compiler

parser

**pHEME.pbc**

**lib/pHEME.g** — **lib/pHEME\_grammar\_gen.pir**

**lib/PhemeGrammar.pir** **lib/PhemeGrammar.pbc**

**lib/PhemeSymbols.pir** **lib/PhemeSymbols.pbc**

AST Grammar

**tge**  
Tree Grammar Engine

semantic  
analyzer

**lib/pge2past.tg**

**../../../../compilers/past/PAST.pir**

PAST  
Parrot Abstract  
Syntax Tree

rule list

OST Grammar

**tge**  
Tree Grammar Engine

**lib/past2post.tg**

**lib/POST.pir**

POST  
Parrot Opcode  
Syntax Tree

Symbol detection

PIR Grammar

**tge**  
Tree Grammar Engine

Code generator

**lib/post2pir.tg**

Main  
Target Code

Interpreted  
code

**lib/PhemeSymbols.pbc**  
**lib/PhemeObjects.pir**

Base URL for Perl Compiler Tools =>  
<http://svn.perl.org/parrot/trunk/languages/pHEME>

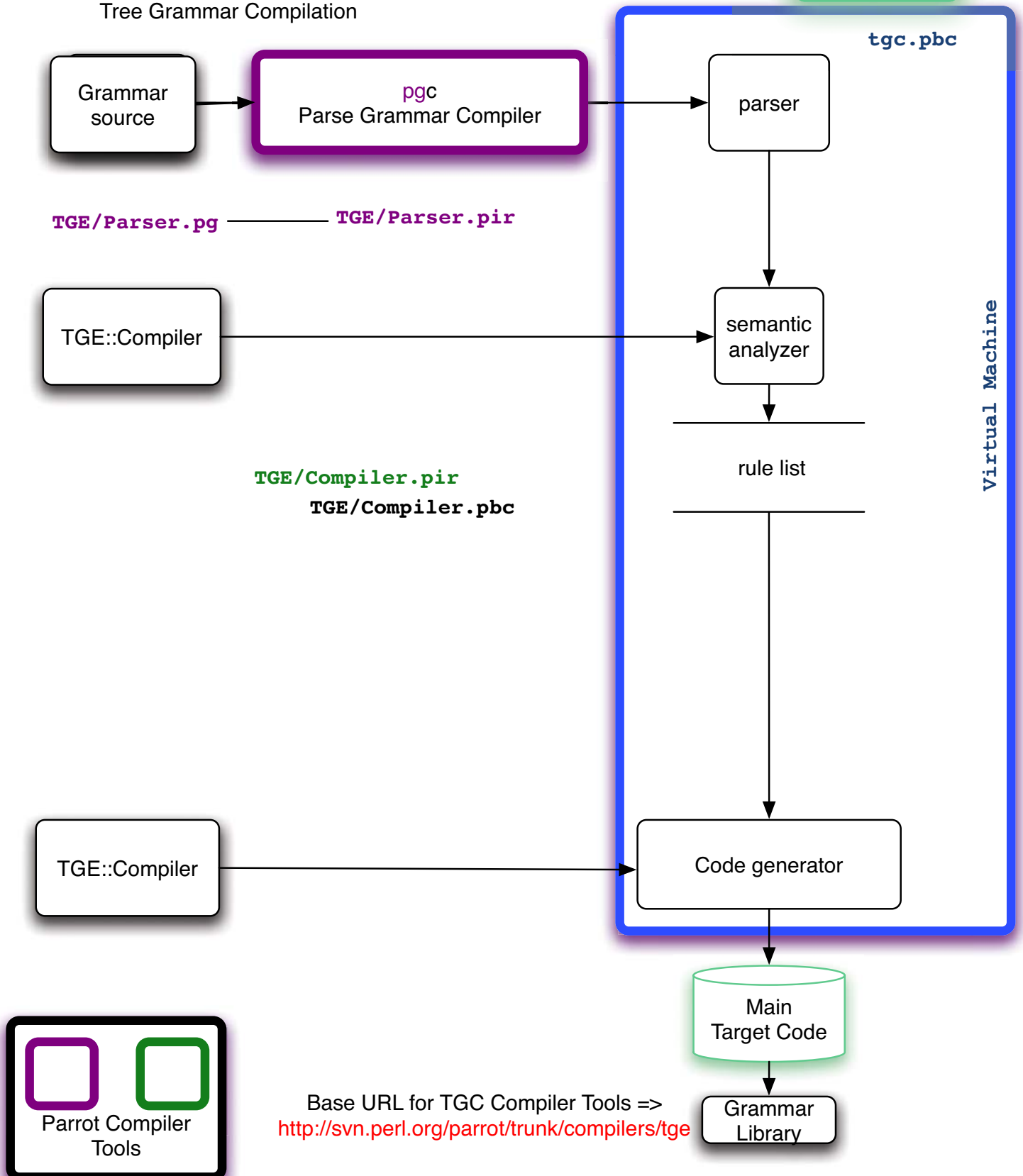
Parrot Compiler  
Tools

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grammar.tg

## Tree Grammar Compilation



## Tree Grammar Compiler Benefits

### AST to OST operations by project

Allison Randal: Punie

1. Reordering nested subroutines outside any containing subroutine
2. Simplifying complex expressions into a series of single operator expressions
3. Simplifying the handling of conditionals, such as if ... then ... else

chromatic: PHEME

1. Find names of functions
2. Within functions, find variable names for functions

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## Perl Language Addressbook

Active	Developers		Inactive	Developers
<b>APL</b> <b>APL</b> on Parrot	Patrick Michaud Will Coleda (coke)		Cardinal (Ruby)	Phil Thomson
<b>PHEME</b> <b>Scheme</b> on Parrot	chromatic		BASIC	
<b>Perl6</b> <b>Perl 6</b> on Parrot	Patrick Michaud		PHP	
<b>Pirate</b> <b>Python</b> on Parrot	Tyler Coumbes Michal Wallace		Ponie 1.0	
<b>ParTcl</b> <b>Tcl</b> on Parrot	mdiep		Forth	
<b>Punie</b> <b>Perl 1</b> on Parrot	Allison Randal		JavaScript	
<b>Pugs</b> <b>Perl 6</b> on Perl 5 <b>Perl 6</b> on Haskell <b>Perl 6</b> on JavaScript <b>Perl 6</b> on Parrot	Audrey/Flavio See Pugs AUTHORS file		BF	
			TeX macro	
<b>Planned for future</b>	<b>Developers</b>		Lua	
<b>Ponie 2.0</b> <b>Perl 5</b> on Parrot	Patrick Michaud Allison Randal		Objective-C	
			Dylan	
			Forth	