Michael Watzer 13.05.2017

php\php_parse.php(token-based Parser)

Grammar

G=(∑,A,S,R)

wheras Tree T is parsing-tree for G if,

- S labels the root
- A labels inner nodes
- Leaves are labeld with {∈} u ∑
- and inner nodes and leaves are following the rule R

Attributes

Sets

M_1 = {private, public, protected}
M_2 = {const}
S = {static}
V = {$var}
A = { = 'assignment'}
C = {var}

A ∈ { P({x ∈ M_1, y ∈ S}), {y ∈ S, x ∈ M_1} }
B ∈ M_2
v ∈ V
a ∈ A
c ∈ C

Rule R

S → A | B
A → v | va
B → ca

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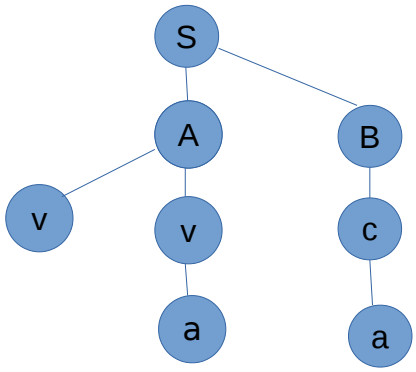
Parsetree



Examples

public static $val	$S \rightarrow A \rightarrow v$
private $val	$S \rightarrow A \rightarrow v$
protected static $name = 'assignment'	$S \rightarrow A \rightarrow va$
public $name = 'assignment'	$S \rightarrow A \rightarrow va$
const name = 'assignment'	$S \rightarrow B \rightarrow ca$

Methods

Sets

M_1 = {private, public, protected}
P_1 = {array, callback}
P = {$var}
P_2 = {= 'assignment'}
F = {function}
N = {function name}
S = {static}
A = {final, abstract}

$A \in M_1$
$p_1 \in P_1$
$pv \in P$
$pa \in P_2$
$s \in S$
$f \in F$
$a \in A$
$n \in N$

Parameter variation

$P = \{pv, \{p_1, pv\}, \{p_1, pv, pa\}, \{pv, pa\}\}$
$p \in P$

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Access type variation

x = {A, a, s}

$$M_2 = \sum_{k=1}^{3} \{(x_1, .. , xk) \mid xi \in \{1, .. ,n\}, xi \neq xj \text{ for } i \neq j\}$$

$M_2 = \{\varnothing, M_2\}$

$M \in M_2$

Number of elements = |M|

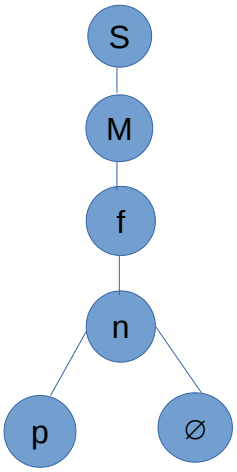
Rule R

S → M

M → fn

fn → p | ∅

Parsetree



Examples

public static function getName()	S → M → fn → ∅
private static final function getName()	S → M → fn → ∅
abstract function getName()	S → M → fn → ∅
protected final function getName(array $nameList)	S → M → fn → p
function getName(callback $nameFunc)	S → M → fn → p

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Classes

Sets

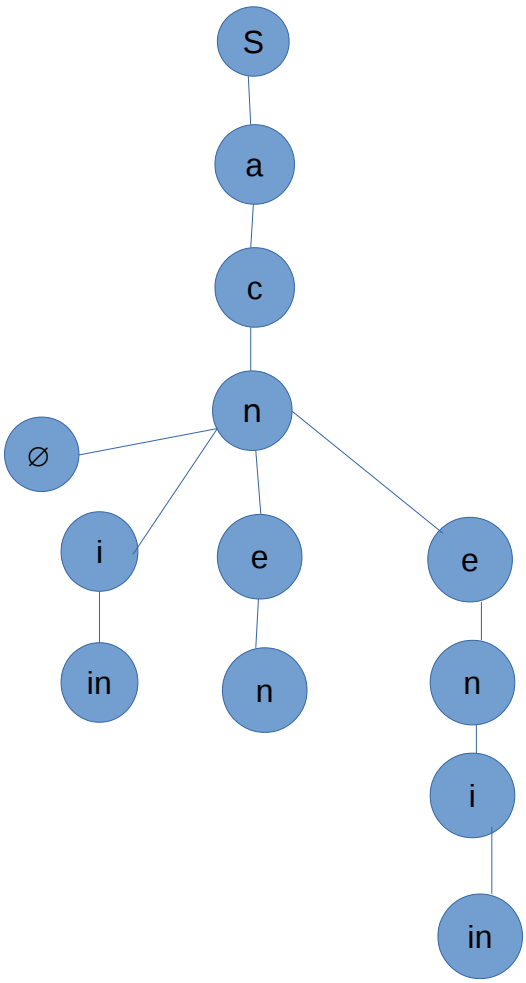
C = {class}
N = {class name}
IN = {interface name}
A = {final, abstract, ∅}
I = {implements}
E = {extends}

c ∈ C
n ∈ N
in ∈ IN
a ∈ A
i ∈ I
e ∈ E

Rule R

S → ac
ac → n
n → ∅ | en | iin | eniin

ParseTree



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Examples

class myclass	S → ac → n → ∅
final class myclass	S → ac → n → ∅
class myclass extends superclass	S → ac → n → en
class myclass extends superclass implements iface	S → ac → n → eniin

Interfaces

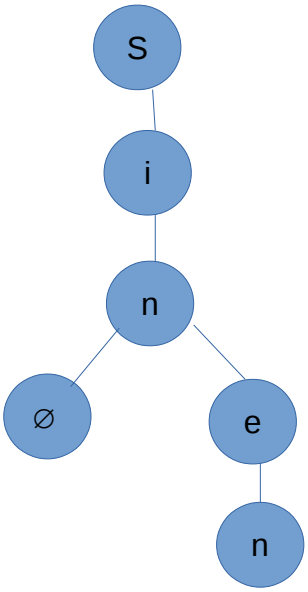
I = {interface}
N = {interface name}
E = {extends}

i ∈ I
n ∈ N
e ∈ E

Rule R

S → in
in → ∅ | en

Parsetree



Examples

interface IFace	S → in → ∅
interface IFace extends SuperIFace	S → in → en