

PASCALMAISPRESQUE  
Introduction to language theory and compiling  
Project – Solution of Part 2

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[1]	<Program>	→ begin <Code> end
[2]	<Code>	→ <InstList>
[3]		→ $\epsilon$
[4]	<InstList>	→ <Instruction> <InstListTail>
[5]	<InstListTail>	→ . . . <Instruction> <InstListTail>
[6]	<InstListTail>	→ $\epsilon$
[7]	<Instruction>	→ <Assign>
[8]		→ <If>
[9]		→ <While>
[10]		→ <Print>
[11]		→ <Read>
[12]		→ begin <InstList> end
[13]	<Assign>	→ [VarName] := <ExprArith>
[14]	<ExprArith>	→ <Prod><ExprArith'>
[15]	<ExprArith'>	→ +<Prod><ExprArith'>
[16]		→ -<Prod><ExprArith'>
[17]		→ $\epsilon$
[18]	<Prod>	→ <Atom><Prod'>
[19]	<Prod'>	→ *<Atom> <Prod'>
[20]		→ /<Atom> <Prod'>
[21]		→ $\epsilon$
[22]	<Atom>	→ -<Atom>
[23]		→ ( <ExprArith> )
[24]		→ [VarName]
[25]		→ [Number]
[26]	<If>	→ if <Cond> then <Instruction> else <IfTail>
[27]	<IfTail>	→ <Instruction>
[28]		→ $\epsilon$
[29]	<Cond>	→ <Conj> <Cond'>
[30]	<Cond'>	→ or <Conj> <Cond'>
[31]		→ $\epsilon$
[32]	<Conj>	→ <SimpleCond> <Conj'>
[33]	<Conj'>	→ and <SimpleCond> <Conj'>
[34]		→ $\epsilon$
[35]	<SimpleCond>	→ { <Cond> }
[36]		→ <ExprArith> <Comp> <ExprArith>
[37]	<Comp>	→ =
[38]		→ <
[39]	<While>	→ while <Cond> do <Instruction>
[40]	<Print>	→ print ([VarName])
[41]	<Read>	→ read ([VarName])

Note: <Op> was removed, <SimpleCond> was overloaded so that we don't have a variable <Prop> that can yield either <SimpleCond> or { <Cond> }

Figure 1: The PASCALMAISPRESQUE modified grammar.

	begin	end	if	then	else	while	do	print	read	::	+	-	*	/	(	)	)	and	or	{	}	=	>	[VarName]	[Number]
<Program>	1																								
<Code>	2	3	2			2		2	2															2	
<InstList>	4		4			4		4	4															4	
<InstListTail>	6								5																
<Instruction>	12		8			9		10	11															7	
<Assign>																								13	
<ExprArith>												14			14									14	
<ExprArith'>	17		17	17			17			17	15	16				17	17	17	17	17	17	17	17	14	
<Prod>												18			18									18	
<Prod'>	21		21	21			21			21	21	21	19	20	21	21	21	21	21	21	21	21	21	24	
<Atom>												22			23									25	
<If>			26																						
<IfTail>	27	28	27			27		27	27	28														27	
<Cond>												29			29					29				29	
<Cond'>				31			31												30		31				
<Conj>												32			32				32		32			32	
<Conj'>												34			34				34		34			32	
<SimpleCond>												36			36				35		35			36	
<Comp>																						37	36		
<While>					39																				
<Print>								40																	
<Read>									41																

Table 1 : Action table