

## **Análisis First**

$\text{first}(\text{Program}) = \{\text{process}\}$

$\text{first}(\text{Program}') = \{\text{function}\}$

$\text{first}(\text{Class}) = \{\text{process}\}$

$\text{first}(\text{Cont}) = \{\text{definir id write read if for repeat while switch}\}$

$\text{first}(\text{Cont}') = \{\text{definir id write read if for repeat while switch } \epsilon\}$

$\text{first}(\text{Accon}) = \{\text{definir id write read if for repeat while switch}\}$

$\text{first}(\text{Condif}) = \{\text{if}\}$

$\text{first}(\text{Condif}') = \{\text{else}\}$

$\text{first}(\text{Func}) = \{\text{function}\}$

$\text{first}(\text{CycleWhile}) = \{\text{while}\}$

$\text{first}(\text{CycleRep}) = \{\text{repeat}\}$

$\text{first}(\text{CycleFor}) = \{\text{for}\}$

$\text{first}(\text{Multselec}) = \{\text{switch}\}$

$\text{first}(\text{Multselec}') = \{\text{data\_int } \epsilon\}$

$\text{first}(\text{Multselec}'') = \{\text{data\_int}\}$

$\text{first}(\text{Contblo}) = \{\text{id write read if for repeat while switch}\}$

$\text{first}(\text{Contblo}') = \{\text{id write read if for repeat while switch } \epsilon\}$

$\text{first}(\text{Acblo}) = \{\text{id write read if for repeat while switch}\}$

$\text{first}(\text{Contswi}) = \{\text{id write read if for repeat while}\}$

$\text{first}(\text{Contswi}') = \{\text{id write read if for repeat while } \epsilon\}$

$\text{first}(\text{Acswi}) = \{\text{id write read if for repeat while}\}$

$\text{first}(\text{Exprelog}) = \{\text{id data\_int data\_double}\}$

$\text{first}(\text{Exprelog}') = \{\text{and or not } \epsilon\}$

$\text{first}(\text{Log}) = \{\text{id data\_int data\_double}\}$

$\text{first}(\text{Expremath}) = \{\text{data\_int data\_double fun\_sqrt fun\_abs fun\_ln fun\_exp fun\_sen fun\_cos fun\_atan fun\_trunc fun\_round fun\_rand}\}$

first(Expemath') = {plus minus mult div exp modulo}  
first(Mathfunc) = {fun\_sqrt fun\_abs fun\_ln fun\_exp fun\_sen fun\_cos fun\_atan fun\_trunc  
fun\_round fun\_rand}  
first(Mathfunc') = {fun\_sqrt fun\_abs fun\_ln fun\_exp fun\_sen fun\_cos fun\_atan fun\_trunc  
fun\_round fun\_rand}

first(Exprestring) = {data\_string}  
first(Exprestring') = {plus}

first(Expression) = {id}  
first(Expression') = {delim\_lparen plus minus mult div exp modulo ε}

first(Typed) = {int real bool char string}

first(Simb) = {plus minus mult div exp modulo}

first(Valor) = {data\_int data\_double data\_string true false}  
first(Valornum) = {data\_int data\_double}  
first(Valorlog) = {data\_int data\_double id}  
first(Valorexp) = {data\_int data\_double id data\_string}  
first(Valorstring) = {id data\_string}  
first(Valorbool) = {true false}

first(Opeasig) = {less more same less\_same more\_same diff}  
first(Opelog) = {and or not}

first(Asig) = {id}  
first(Asig') = {data\_int data\_double data\_string true false fun\_sqrt fun\_abs fun\_ln  
fun\_exp fun\_sen fun\_cos fun\_atan fun\_trunc fun\_round fun\_rand id}

first(Impr) = {write}  
first(Impr') = {data\_int data\_double data\_string true false id}

first(Printmul) = {delim\_comma ε}  
first(Printmul') = {id data\_int data\_double data\_string true false}

first(Lect) = {read}  
first(Defi) = {definir}  
first(Usfun) = {delim\_lparen}

$\text{first}(\text{Varmul}) = \{\text{id}\}$

$\text{first}(\text{Varmul}') = \{\text{delim\_comma } \epsilon\}$

## **Análisis Follow**

follow(Program) = {eof}

follow(Program') = {eof}

follow(Class) = {function}

follow(Cont) = {delim\_rkey}

follow(Cont') = {delim\_rkey}

follow(Accon) = {definir id write read if for repeat while switch}

follow(Condif) = {definir id write read if for repeat while switch}

follow(Condif') = {else end\_if}

follow(Func) = {function}

follow(CycleWhile) = {definir id write read if for repeat while switch}

follow(CycleRep) = {definir id write read if for repeat while switch}

follow(CycleFor) = {definir id write read if for repeat while switch}

follow(Multselec) = {definir id write read if for repeat while switch}

follow(Multselec') = {default}

follow(Multselec'') = {data\_int}

follow(Contblo) = {delim\_rkey}

follow(Contblo') = {delim\_rkey}

follow(Acblo) = {id write read if for repeat while switch}

follow(Contswi) = {delim\_rkey}

follow(Contswi') = {delim\_rkey}

follow(Acswi) = {id write read if for repeat while}

follow(Exprelog) = {delim\_rparen}

follow(Exprelog') = {delim\_rparen}

follow(Log) = {and or not}

follow(Expremath) = {delim\_line}

follow(Expremath') = {delim\_line}

follow(Mathfunc) = {delim\_line}

follow(Mathfunc') = {delim\_lparen}

follow(Exprestring) = {delim\_line}  
follow(Exprestring') = {delim\_line}

follow(Expression) = {delim\_line}  
follow(Expression') = {delim\_line}

follow(Typed) = {delim\_line}

follow(Simb) = {data\_int data\_double id}

follow(Valor) = {delim\_line delim\_comma}  
follow(Valornum) = {less more same less\_same more\_same diff and or no plus minus  
mult div exp modulo delim\_line}  
follow(Valorlog) = {and or not delim\_line}  
follow(Valorexp) = {delim\_line}  
follow(Valorstring) = {delim\_line}  
follow(Valorbool) = {delim\_line}

follow(Opeasig) = {id data\_int data\_double}  
follow(Opelog) = {id data\_int data\_double}

follow(Asig) = {definir id write read if for repeat while switch}  
follow(Asig') = {delim\_line}

follow(Impr) = {definir id write read if for repeat while switch}  
follow(Impr') = {delim\_line}  
follow(Printmul) = {delim\_line}  
follow(Printmul') = {delim\_line}

follow(Lect) = {definir id write read if for repeat while switch}  
follow(Defi) = {definir id write read if for repeat while switch}  
follow(Usfun) = {delim\_line}

follow(Varmul) = {delim\_rparen}  
follow(Varmul') = {delim\_rparen}

## **Análisis Intersecciones**

first(Program'→Func Program') = first(Func) = function  
first(Program'→ε) = follow(Program') = eof  
first(Cont'→Accon Cont') = first(Accon) = definir id write read if for repeat while switch  
first(Cont'→Accon) = first(Accon) = delim\_rkey  
first(Accon→Defi) = first(Defi) = definir  
first(Accon→Asig) = first(Asig) = id  
first(Accon→Impr) = first(Impr) = write  
first(Accon→Lect) = first(Lect) = read  
first(Accon→Condif) = first(Condif) = if  
first(Accon→Cyclefor) = first(Cyclefor) = for  
first(Accon→Cyclerep) = first(Cyclerep) = repeat  
first(Accon→Cyclewhile) = first(Cyclewhile) = while  
first(Accon→Multselec) = first(Multselec) = switch  
first(Condif'→else delim\_lkey Cont delim\_rkey end\_if) = else  
first(Condif'→end\_if) = end\_if  
first(Multselec'→Multselec'' Multselec') = first(Multselec'') = data\_int  
first(Multselec'→ε) = follow(Multselec') = default  
first(Contblo'→Acblo Contblo') = first(Acblo) = id write read if for repeat while switch  
first(Contblo'→ε) = follow(Contblo') = delim\_rkey  
first(Acblo→Asig) = first(Asig) = id  
first(Acblo→Impr) = first(Impr) = write  
first(Acblo→Lect) = first(Lect) = read  
first(Acblo→Condif) = first(Condif) = if  
first(Acblo→Cyclefor) = first(Cyclefor) = for  
first(Acblo→Cyclerep) = first(Cyclerep) = repeat  
first(Acblo→Cyclewhile) = first(Cyclewhile) = while  
first(Acblo→Multselec) = first(Multselec) = switch  
first(Contswi'→Acswi Contswi') = first(Acswi) = id write read if for repeat while  
first(Contswi'→ε) = follow(Contswi') = delim\_rkey  
first(Exprelog'→Opelog Log Exprelog') = first(Opelog) = and or not  
first(Exprelog'→ε) = follow(Exprelog') = delim\_rparen  
first(Log→id Opeasig Valorlog) = id  
first(Log→Valornum Opeasig Valorlog) = first(Valornum) = data\_int data\_double  
first(Expremath→Valornum Expremath') = first(Valornum) = data\_int data\_double  
first(Expremath→Mathfunc) = first(Mathfunc) = fun\_sqrt fun\_abs fun\_ln fun\_exp fun\_sen  
fun\_cos fun\_atan fun\_trunc fun\_round fun\_rand  
first(Mathfunc'→fun\_sqrt) = fun\_sqrt  
first(Mathfunc'→fun\_abs) = fun\_abs  
first(Mathfunc'→fun\_ln) = fun\_ln

first(Mathfunc'->fun\_exp) = fun\_exp  
first(Mathfunc'->fun\_sen) = fun\_sen  
first(Mathfunc'->fun\_cos) = fun\_sqrt  
first(Mathfunc'->fun\_atan) = fun\_atan  
first(Mathfunc'->fun\_trunc) = fun\_trunc  
first(Mathfunc'->fun\_round) = fun\_round  
first(Mathfunc'->fun\_rand) = fun\_rand  
first(Exprestring'->plus Valorstring) = plus  
first(Exprestring'->ε) = follow(Exprestring') = delim\_lparen  
first(Expression'->Usfun) = first(Usfun) = delim\_lparen  
first(Expression'->Simb Valorex) = first(Simb) = plus minus mult div exp modulo  
first(Typed->int) = int  
first(Typed->real) = real  
first(Typed->bool) = bool  
first(Typed->char) = char  
first(Typed->string) = string  
first(Simb->plus) = plus  
first(Simb->minus) = minus  
first(Simb->mult) = mult  
first(Simb->div) = div  
first(Simb->exp) = exp  
first(Simb->modulo) = modulo  
first(Valor->data\_int) = data\_int  
first(Valor->data\_double) = data\_double  
first(Valor->data\_string) = data\_string  
first(Valor->>true) = true  
first(Valor->>false) = false  
first(Valornum->data\_int) = data\_int  
first(Valornum->data\_double) = data\_double  
first(Valorlog->id) = id  
first(Valorlog->Valornum) = first(Valornum) = data\_int data\_double  
first(Valorex->id) = id  
first(Valorex->Valornum) = first(Valornum) = data\_int data\_double  
first(Valorex->data\_string) = data\_string  
first(Valorstring->id) = id  
first(Valorstring->data\_string) = data\_string  
first(Valorbool->>true) = true  
first(Valorbool->>false) = false  
first(Opeasig->less) = less  
first(Opeasig->more) = more

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first(Opeasig->same) = same
first(Opeasig->less_same) = less_same
first(Opeasig->more_same) = more_same
first(Opeasig->diff) = diff
first(Opelog->and) = and
first(Opelog->or) = or
first(Opelog->not) = not
first(Asig'->Expremath) = first(Expremath) = data_int data_double fun_sqrt fun_abs
fun_ln fun_exp fun_sen fun_cos fun_atan fun_trunc fun_round fun_rand
first(Asig'->Exprestring) = first(Exprestring) = data_string
first(Asig'->Valorbool) = first(Valorbool) = true false
first(Asig'->Expression) = first(Expression) = id
first(Impr'->Valor Printmul) = first(Valor) = data_int data_double data_string true false
first(Impr'->id Printmul) = id
first(Printmul->delim_comma Printmul' Printmul) = delim_comma
first(Printmul->ε) = follow(Printmul) = delim_line
first(Printmul'->id) = id
first(Printmul'->Valor) = first(Valor) = data_int data_double data_string true false
first(Usfun->delim_lparen Varmul delim_rparen) = delim_lparen
first(Usfun->ε) = follow(Usfun) = delim_line
first(Varmul'->delim_comma id Varmul') = delim_comma
first(Varmul'->ε) = follow(Varmul') = delim_rparen

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