

# Lenguaje Let

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## 1. Sintáxis concreta

*Expression* := *Number*  
*Expression* := *-(Expression, Expression)*  
*Expression* := *zero? (Expression)*  
*Expression* := *if Expression then Expression else Expression*  
*Expression* := *Identifier*  
*Expression* := *let Identifier = Expression in Expression*

## 2. Sintáxis abstracta

(const-exp num)  
(diff-exp exp1 exp2)  
(zero?-exp exp1)  
(if-exp exp1 exp2 exp3)  
(var-exp var)  
(let-exp var exp1 body)

## 3. Semántica

(value-of (const-exp n) env) = (num-val n)

(value-of (var-exp var) env) = env(var)

(value-of (diff-exp exp1 exp2) env)  
= (num-val (- (expval->num (value-of exp1 env))  
              (expval->num (value-of exp2 env))))

(value-of (zero?-exp exp1) env)  
= (let ([val1 (value-of exp1 env)])  
    (bool-val (= 0 (expval->num val1))))

(value-of (if-exp exp1 exp2 exp3) env)  
= (if (expval->bool (value-of exp1 env))  
      (value-of exp2 env)  
      (value-of exp3 env))

(value-of (let-exp var exp1 body) env)  
= (let ([val1 (value-of exp1 env)])  
      (value-of body [var = val1]env))