1 Context-free grammer for CUTE Lang

This chapter explains what context-free grammer is used in CUTE Lang.

1.1 Syntax diagram

To explain efficiently, grammer is explained by syntax diagram first.

Syntax diagram representation rules

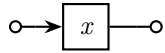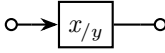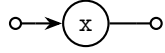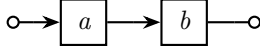Representation rules for our syntax diagram are on Table 1.
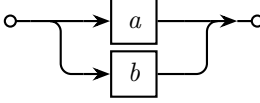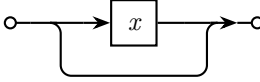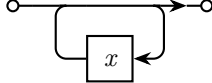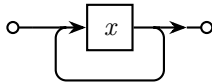
Repesentation	EBNF Equivalent	Meaning
x	x	Nonterminal
$x_{/y}$	$x - y$	Nonterminal except y
(x)	"x"	Terminal
a b	a, b	Sequence
a / b	a | b	Selections
x	[x]	Optional
x	{ x }	Zero or more repeat
x	x, { x }	One or more repeat

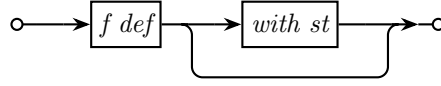Table 1: Representation rules of syntax diagram

Syntax diagram for context-free grammer

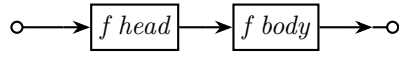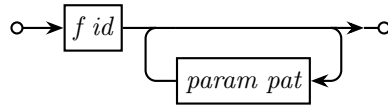Context-free grammer expressed by syntax diagram is the following.
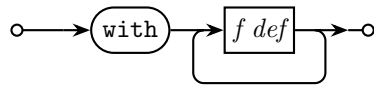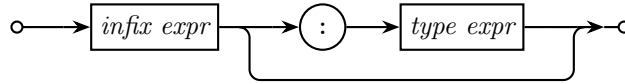
top def

top f def

f def → with st

f def

f head → f body

f head

f id → param pat

f body

expr

with st

with → f def
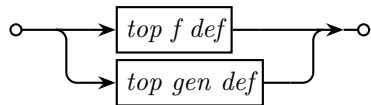
expr

infix expr → : → type expr

infix expr

left expr → biop → infix expr

unop → left expr

left expr

if → expr → then → expr → else → expr

let → f def → in → expr

λ → param pat → → → expr

left expr

f expr

f expr

f expr → a expr