

# 1 Context-free grammar for CUTE Lang

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

## 1.1 Syntax diagram

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

### Syntax diagram representation rules

Representation rules for our syntax diagram are on Table 1.

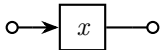
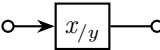
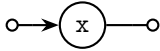
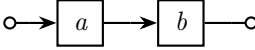
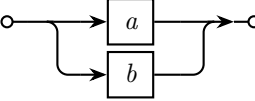
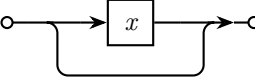
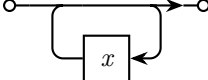
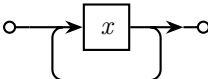
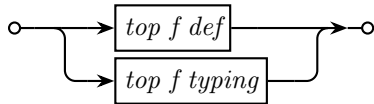
Representation	EBNF Equivalent	Meaning
	$x$	Nonterminal
	$x - y$	Nonterminal except $y$
	"x"	Terminal
	$a, b$	Sequence
	$a \mid b$	Selections
	$[ x ]$	Optional
	$\{ x \}$	Zero or more repeat
	$x, \{ x \}$	One or more repeat

Table 1: Representation rules of syntax diagram

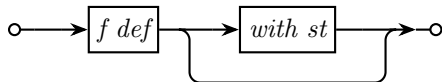
### Syntax diagram for context-free grammar

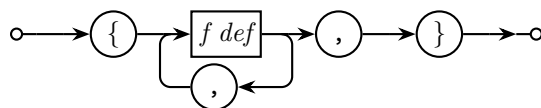
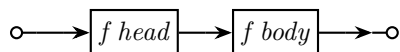
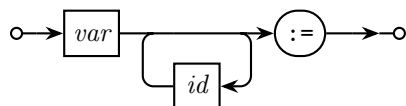
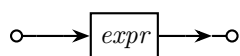
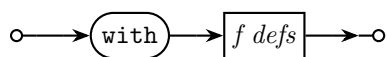
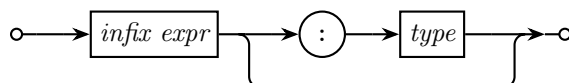
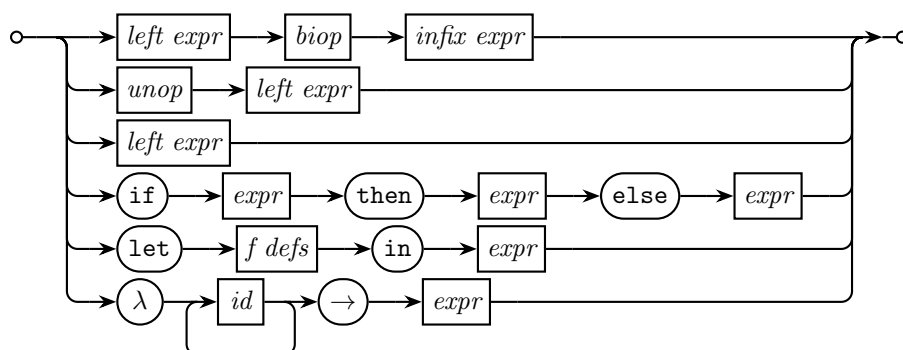
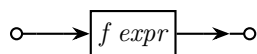
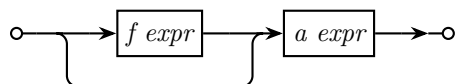
Context-free grammar expressed by syntax diagram is the following.

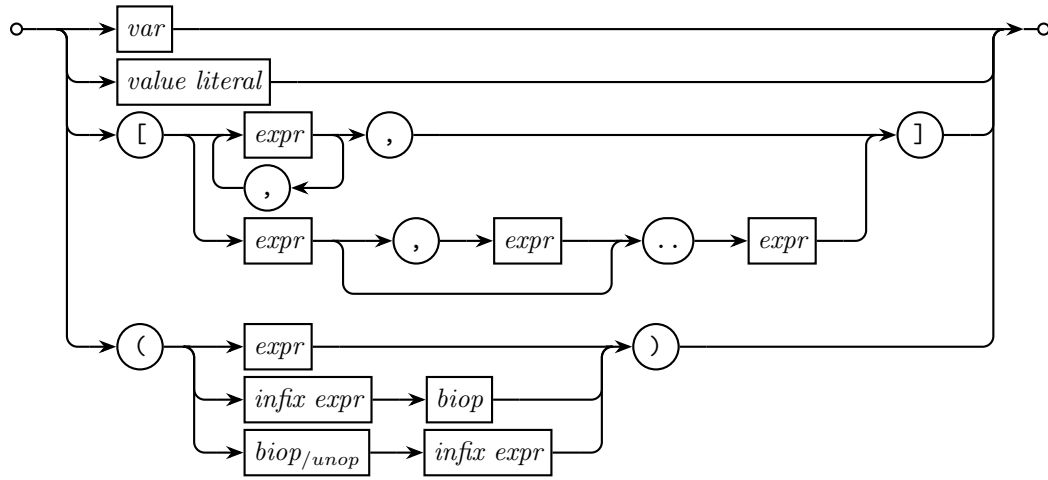
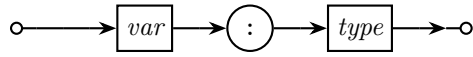
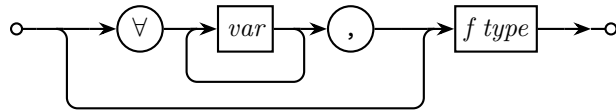
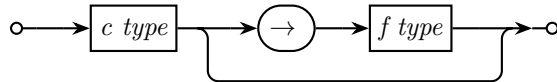
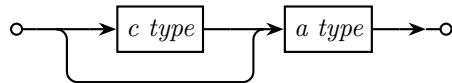
*top st*



*top f def*



*f defs**f def**f head**f body**with st**expr**infix expr**left expr**f expr*

*a expr**top f typing**type**f type**c type**a type*