

Falak BNF \rightarrow LL(1)

- (0) $\langle \text{program} \rangle ::= \langle \text{def-list} \rangle \text{ "EOF"}$
- (1) $\langle \text{def-list} \rangle ::= (\langle \text{def} \rangle)^*$
- (2) $\langle \text{def} \rangle ::= \langle \text{var-def} \rangle \mid \langle \text{fun-def} \rangle$
- (3) $\langle \text{fun-def} \rangle ::= \langle \text{id} \rangle (\langle \text{param-list} \rangle) \{ \langle \text{var-def-list} \rangle \langle \text{stmt-list} \rangle \}$
- (4) $\langle \text{var-def-list} \rangle ::= (\langle \text{var-def} \rangle)^*$
- (5) $\langle \text{var-def} \rangle ::= \text{var } \langle \text{var-list} \rangle ;$
- (6) $\langle \text{var-list} \rangle ::= \langle \text{id-list} \rangle$
- (7) $\langle \text{param-list} \rangle ::= (\langle \text{id-list} \rangle) ?$
- (8) $\langle \text{id-list} \rangle ::= \langle \text{id} \rangle \langle \text{id-list-cont} \rangle$
- (9) $\langle \text{id-list-cont} \rangle ::= (, \langle \text{id} \rangle)^*$
- (10) $\langle \text{stmt-list} \rangle ::= (\langle \text{stmt} \rangle)^*$
- (11) $\langle \text{stmt} \rangle ::= \langle \text{stmt-assign} \rangle \mid \langle \text{stmt-incr} \rangle \mid \langle \text{stmt-decr} \rangle \mid \langle \text{stmt-fun-call} \rangle \mid \langle \text{stmt-if} \rangle \mid \langle \text{stmt-while} \rangle \mid \langle \text{stmt-do-while} \rangle \mid \langle \text{stmt-break} \rangle \mid \langle \text{stmt-return} \rangle \mid \langle \text{stmt-empty} \rangle$
- (12) $\langle \text{stmt-assign} \rangle ::= \langle \text{id} \rangle = \langle \text{expr} \rangle ;$
- (13) $\langle \text{stmt-incr} \rangle ::= \text{inc } \langle \text{id} \rangle ;$
- (14) $\langle \text{stmt-decr} \rangle ::= \text{dec } \langle \text{id} \rangle ;$
- (15) $\langle \text{stmt-fun-call} \rangle ::= \langle \text{fun-call} \rangle ;$
- (16) $\langle \text{fun-call} \rangle ::= \langle \text{id} \rangle (\langle \text{expr-list} \rangle)$
- (17) $\langle \text{expr-list} \rangle ::= (\langle \text{expr} \rangle \langle \text{expr-list-cont} \rangle) ?$
- (18) $\langle \text{expr-list-cont} \rangle ::= (, \langle \text{expr} \rangle)^*$
- (19) $\langle \text{stmt-if} \rangle ::= \text{if } (\langle \text{expr} \rangle) \{ \langle \text{stmt-list} \rangle \} \langle \text{else-if-list} \rangle \langle \text{else} \rangle$
- (20) $\langle \text{else-if-list} \rangle ::= (\text{elseif } (\langle \text{expr} \rangle) \{ \langle \text{stmt-list} \rangle \})^*$
- (21) $\langle \text{else} \rangle ::= (\text{else } \{ \langle \text{stmt-list} \rangle \}) ?$
- (22) $\langle \text{stmt-while} \rangle ::= \text{while } (\langle \text{expr} \rangle) \{ \langle \text{stmt-list} \rangle \}$
- (23) $\langle \text{stmt-do-while} \rangle ::= \text{do } \{ \langle \text{stmt-list} \rangle \} \text{while } (\langle \text{expr} \rangle) ;$
- (24) $\langle \text{stmt-break} \rangle ::= \text{break} ;$
- (25) $\langle \text{stmt-return} \rangle ::= \text{return } \langle \text{expr} \rangle ;$
- (26) $\langle \text{stmt-empty} \rangle ::= ;$
- (27) $\langle \text{expr} \rangle ::= \langle \text{expr-or} \rangle$
- (28) $\langle \text{expr-or} \rangle ::= \langle \text{expr-and} \rangle (\langle \text{op-or} \rangle \langle \text{expr-and} \rangle)^*$
- (29) $\langle \text{op-or} \rangle ::= || \mid \wedge$
- (30) $\langle \text{expr-and} \rangle ::= \langle \text{expr-comp} \rangle (\&\& \langle \text{expr-comp} \rangle)^*$
- (31) $\langle \text{expr-comp} \rangle ::= \langle \text{expr-rel} \rangle (\langle \text{op-com} \rangle \langle \text{expr-rel} \rangle)^*$
- (32) $\langle \text{op-comp} \rangle ::= == \mid !=$
- (33) $\langle \text{expr-rel} \rangle ::= \langle \text{expr-add} \rangle (\langle \text{op-rel} \rangle \langle \text{expr-add} \rangle)^*$
- (34) $\langle \text{op-rel} \rangle ::= < \mid <= \mid > \mid >=$
- (35) $\langle \text{expr-add} \rangle ::= \langle \text{expr-mul} \rangle (\langle \text{op-add} \rangle \langle \text{expr-mul} \rangle)^*$
- (36) $\langle \text{op-add} \rangle ::= + \mid -$
- (37) $\langle \text{expr-mul} \rangle ::= \langle \text{expr-unary} \rangle (\langle \text{op-mul} \rangle \langle \text{expr-unary} \rangle)^*$
- (38) $\langle \text{op-mul} \rangle ::= * \mid / \mid \%$
- (39) $\langle \text{expr-unary} \rangle ::= (\langle \text{op-unary} \rangle)^* \langle \text{expr-primary} \rangle$
- (40) $\langle \text{op-unary} \rangle ::= + \mid - \mid !$
- (41) $\langle \text{expr-primary} \rangle ::= \langle \text{id} \rangle \mid \langle \text{fun-call} \rangle \mid \langle \text{array} \rangle \mid \langle \text{lit} \rangle \mid (\langle \text{expr} \rangle)$
- (42) $\langle \text{array} \rangle ::= [\langle \text{expr-list} \rangle]$
- (43) $\langle \text{lit} \rangle ::= \langle \text{lit-bool} \rangle \mid \langle \text{lit-int} \rangle \mid \langle \text{lit-char} \rangle \mid \langle \text{lit-str} \rangle$