

Compiler Lab Report:

HW2

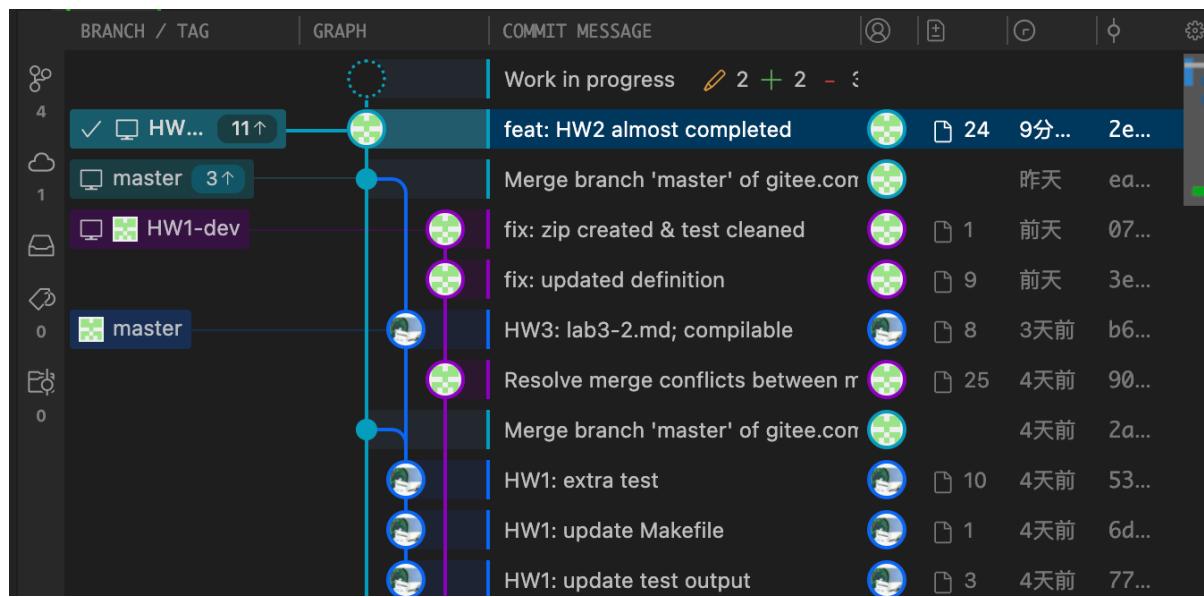


Name: 韩周吾

ID: 22307130440

Date: 2025.03.13

Graphs and Figures



References

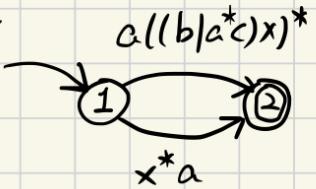
- 虎书Ch2/3

Assignment 2

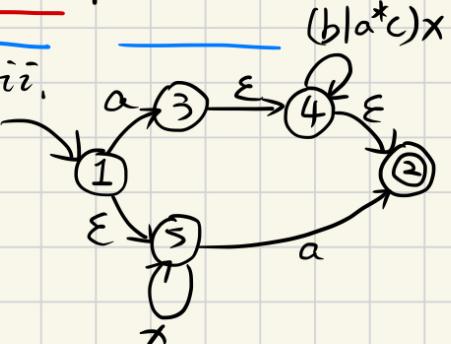
3/9

$$2.4(b) \quad a \left(\underline{(b|a^*c)} \right)^* \mid x^* a$$

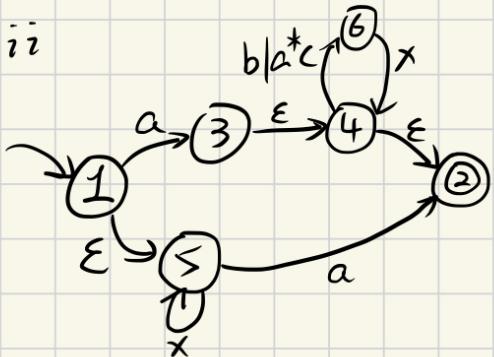
i.



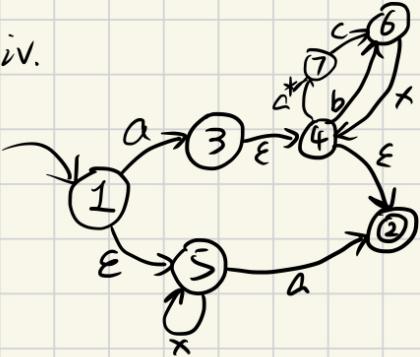
ii.



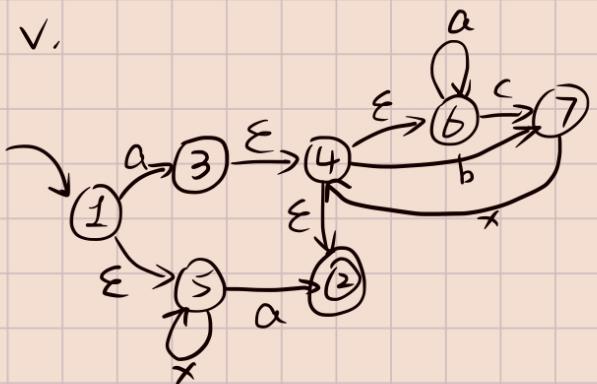
iii.



iv.

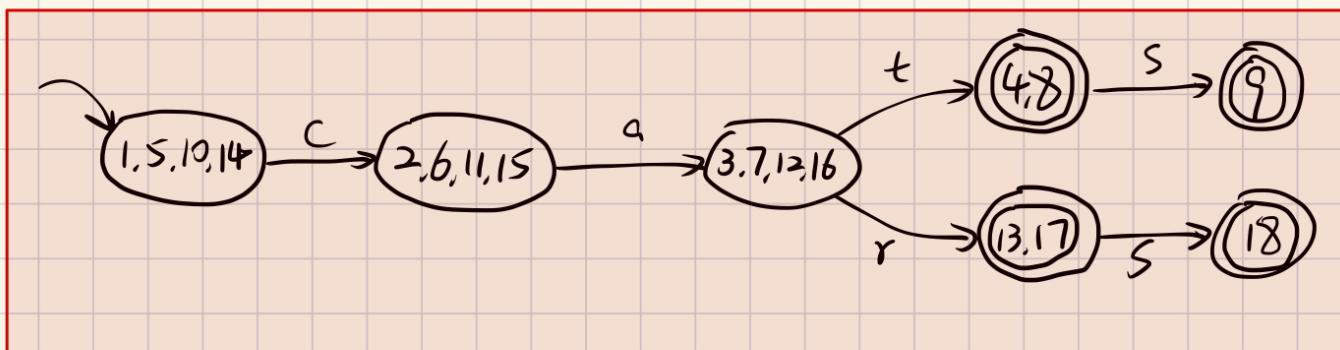


v.



2.5(c)

I	I_c	I_a	I_t	I_s	I_r
$\{1, 5, 10, 14\}$	$\{2, 6, 11, 15\}$				
$\{2, 6, 11, 15\}$		$\{3, 7, 12, 16\}$			
$\{3, 7, 12, 16\}$			$\{4, 8\}$		
$\{4, 8\}$				$\{9\}$	
$\{13, 17\}$				$\{18\}$	



3.3(b) $S \rightarrow aT$

$T \rightarrow Sb | S | \epsilon$

(d) $S \rightarrow \epsilon | SS | (S) | [P]$

$P \rightarrow (| (P) | [P] | \epsilon | PP$

3.4 $S \rightarrow S; S \mid id := E \mid print(L)$

$\hookrightarrow \begin{cases} S \rightarrow id := E S' \mid print(L) S' \\ S' \rightarrow ; S S' \mid \epsilon \end{cases}$

$E \rightarrow id \mid num \mid E + E \mid (S, E)$

$\hookrightarrow \begin{cases} E \rightarrow T E' \\ E' \rightarrow + T E' \mid \epsilon \\ T \rightarrow id \mid num \mid (S, E) \end{cases}$

$L \rightarrow E \mid L, E$

$\hookrightarrow \begin{cases} L \rightarrow E L' \\ L' \rightarrow , E L' \mid \epsilon \end{cases}$

新文法: 1. $S \rightarrow id := E S' \mid print(L) S'$

2. $S' \rightarrow ; S S' \mid \epsilon$

3. $E \rightarrow T E'$

4. $E' \rightarrow + T E' \mid \epsilon$

5. $T \rightarrow id \mid num \mid (S, E)$

6. $L \rightarrow E L'$

7. $L' \rightarrow , E L' \mid \epsilon$

3.12 (a)

$$I_0 : S \rightarrow \cdot E \$$$

$$E \rightarrow \cdot id$$

$$E \rightarrow \cdot id(E)$$

$$E \rightarrow \cdot E + id$$

id

E

$$I_1 : E \rightarrow id \cdot$$

$$E \rightarrow id \cdot (E)$$

$$I_2 : S \rightarrow E \cdot \$$$

$$E \rightarrow E \cdot + id$$

$($

$$I_3 : E \rightarrow id(\cdot E)$$

$$E \rightarrow \cdot id$$

$$I_4 : E \rightarrow E + \cdot id$$

id

$)$

$$I_6 : E \rightarrow E + id \cdot$$

$$I_5 : E \rightarrow id(E \cdot)$$

$$E \rightarrow id \cdot$$

$)$

$$I_7 : E \rightarrow id(E) \cdot$$

(b) 不是, I_1 中存在 shift-reduce conflict