

编译 hw 7

9.1 9.2 9.3 9.15a, f

9.1 (a) 回边: $B_5 \rightarrow B_2$ $B_4 \rightarrow B_3$

循环: $\{B_2, B_3, B_4, B_5\}$ $\{B_3, B_4\}$

(b) 对 a: (3)(4)(6)(8)(9)

对 b: $\bar{\Lambda}$

(c) $\{B_2, B_3, B_4, B_5\}$ $a+b \equiv c-a$
 $\{B_3, B_4\}$ $\bar{\Lambda}$

(d) $\{B_2, B_3, B_4, B_5\}$ b, c
 $\{B_3, B_4\}$ e

(e) $\{B_2, B_3, B_4, B_5\}$ $\bar{\Lambda}$
 $\{B_3, B_4\}$ $a+b$

9.2

公共子表达式: $i * 8$

归纳变量 $i, t1, t3$

$dp = 0$

$i = 0$

$t1 = 8 * n$

$t2 = A[i]$

$t3 = B[i]$

$t4 = t2 * t3$

$dp = dp + t4$

$i = i + 8$

if $i < t1$ goto L

3 a.

BB	gen	kill	IN	OUT	OUT
1	1, 2	8, 9, 10 8, 10, 11	\emptyset		1, 2
2	3, 4	5, 6	1, 2, 3, 4, 5, 8, 9		1, 2, 3, 4, 8, 9
3	5	4, 6	1, 2, 3, 4, 6, 7, 8, 9		1, 2, 3, 5, 7, 8, 9
4	6, 7	4, 5, 9	1, 2, 3, 5, 7, 8, 9		1, 2, 3, 6, 7, 8
5	8, 9	2, 7, 11	1, 2, 3, 4, 5, 7, 8		1, 3, 4, 5, 8, 9
6	10, 11	1, 2, 8	1, 3, 4, 5, 8, 9		3, 4, 5, 9, 10, 11

b. $U = \{1, 2, a+b, c-a, b+d, b*d, a-d, e+1\}$

BB	e_gen	e_kill	IN IN	OUT
1	1, 2	$a+b, c-a, b+d, b*d, a-d$	\emptyset	1, 2
2	$a+b, c-a$	$b+d, b*d, a-d$	1, 2, $c-a$	1, 2, $a+b, c$
3	\emptyset	$b+d, b*d, a-d$	1, 2, $a+b, c-a$	1, 2, $a+b, c$
4	$a+b$	$b+d, b*d, a-d, e+1$	1, 2, $a+b, c-a$	1, 2, $a+b, c$
5	$c-a$	$a+b, b+d, b*d, e+1$	1, 2, $a+b, c-a$	1, 2, $c-a$
6	$a-d$	$a+b, c-a, b+d, b*d$	1, 2, $e-a$	1, 2, $a-d$

2.

BB	def	use	IN	OUT
1	a, b	\emptyset	e	a, b, e
2	c, d	a, b	a, b, e	a, b, c, d, e
3	\emptyset	b, d	a, b, c, d, e	a, b, c, d, e
4	d	a, b, e	a, b, c, e	a, b, c, d, e
5	e	a, b, c	a, b, c, d	a, b, d, e
6	a	b, d	b, d	\emptyset

9.15 a

BB

- doms

1

1

2

1, 2

3

1, 2, 3

4

1, 2, 3, 4

5

1, 2, 5

6

1, 2, 5, 6

f.

图边

$B_5 \rightarrow B_2$, $B_4 \rightarrow B_3$

循环

$\{2, 3, 4, 5\}$, $\{3, 4\}$