第三章作业2

12. 将下图的(a)、(b)分别确定化和最小化.

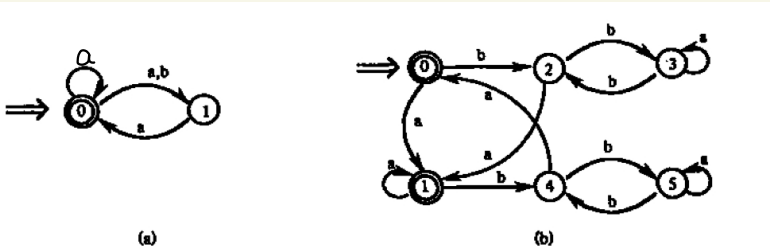
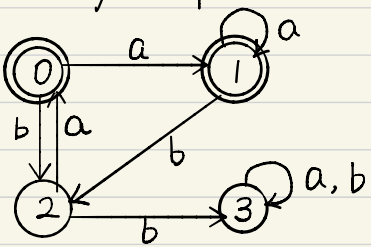


图 3.18 有限自动机

(a)零确定化的有限自动机;(b)零最小化的有限自动机。

解:(a)确定化:

	a	b
→0 {0}	{0,1}	{1}
0{0,1}	{0,1}	{1}
{1}	{0}	∅
∅	∅	∅



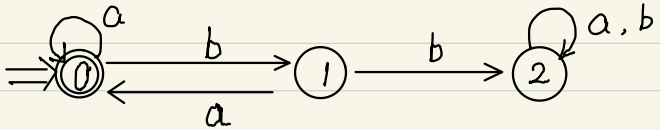
最小化:

{0,1} {2,3}

$\{0,1\}_a=\{1\}$ $\{0,1\}_b=\{2\}$ $\{2,3\}_a=\{0,3\}$

$\{2,3\}_b=\{3\}$

{0,1} {2} {3}



(b) 最小化:

$\{0,1\}$ $\{2,3,4,5\}$

$\{0,1\}_a = \{1\}$ $\{0,1\}_b = \{2,4\}$

$\{2,3,4,5\}_a = \{1,3,0,5\}$ $\{2,3,4,5\}_b = \{3,2,5,4\}$

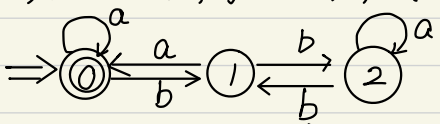
$\{0,1\}$ $\{2,4\}$ $\{3,5\}$

$\{2,4\}_a = \{1,0\}$ $\{2,4\}_b = \{3,5\}$

$\{0,1\}_a = \{1\}$ $\{0,1\}_b = \{2,4\}$

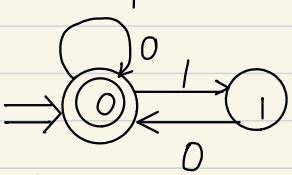
$\{3,5\}_a = \{3,5\}$ $\{3,5\}_b = \{2,4\}$

达到最小,为 $\{0,1\}$ $\{2,4\}$ $\{3,5\}$



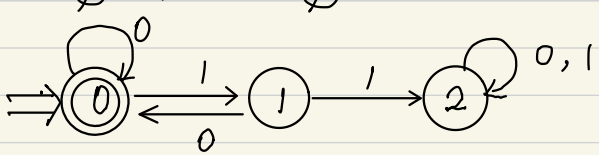
14. 构造一个DFA.它接受 $\Sigma = \{0,1\}$ 上所有满足如下条件的字符串:每个1都有0直接跟在右边。

解: $(0 \mid 10)^*$



确定化:

	0	1
$\{0\}$	$\{0\}$	$\{1\}$
$\{1\}$	$\{0\}$	$\emptyset$
$\emptyset$	$\emptyset$	$\emptyset$



最小化：{0} {1,2}

$\{1,2\}_0 = \{0,2\}$ $\{1,2\}_1 = \{2\}$

{0} {1} {2}