In this case A and A' are equivalent. We leave it to the reader to verify these claims. The process must always terminate because all pairs in column 1 are distinct pairs and there are only finitely many distinct pairs of the vertices of A and A'.

Q.E.D.

EXAMPLE 1-7

1. Consider the following two finite automata A and A' over $\Sigma = \{a, b\}$ described in Fig. 1-1.

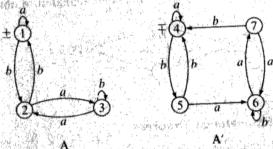


Figure 1-1 The finite automata A and A.

They are equivalent because the corresponding comparison table is

(v, i	/)	$(v_a,v_a'$) ($v_b, v_b)$
(1,	4)	(1, 4)		2, 5)
(2,	Street Buch	(3, 6)	KH KA	(1, 4)
(3,	6)	(2, 7)	Vicini in the second	(3, 6)
(2,	7)	(3, 6)		(1, 4)

There are no pairs in columns 2 and 3 that do not occur in column 1. 2. Consider the two finite automata B and B described in Fig. 1-2.

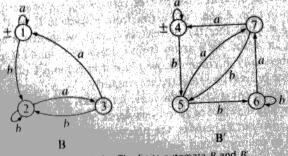


Figure 1-2 The finite automata B and B'

They are equivalent because the corresponding comparison table is

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	- (3, 7	1	13	(1,	4)	5.00	317	(2,	رد	N.	: v) (1,17	£39	17.1	144	施
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THE RESERVE OF THE PROPERTY OF THE PERSON OF Again, there are no pairs in columns 2 and 3 that do not occur in column 1.

3. Consider the two finite automata A and B described in Fig. 1-3.

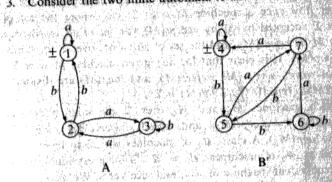


Figure 1-3 The finite automata A and B;

10、新香油、黄芩油、黄芩油、 They are not equivalent because the corresponding comparison table is The street of the second of the second

A STATE OF THE STATE OF THE STATE OF Note that 1 is a final vertex of A while 6 is a nonfinal vertex of B'. Since the pair was obtained by applying the letter b twice, the table actually shows us, not only that A and B are not equivalent, but also that an при opriate counterexample is the word bb.

It can be shown that A accepts the set of all words which are the hinary representation of natural numbers divisible by 3, where a stands for It and histinds for It (Such numbers with leading 0's on the left are also (herepled) The corresponding sets S_1 , S_2 , and S_3 contain all words rep-**Reconting** binary numbers which, after division by 3, yield remainders 0, Mild 2, respectively. The automaton B' accepts the set of all words which the binary representation of natural numbers divisible by 4. The