Example Consider the NFA with E-moves. - (2) E (2) 2 Find an equivalent NFA without E-moves. Q Z 8 90 9 Solution: Given NFA with E-move symbols (1) 5. M = (& 90, 9, 923, £0, 1, 2, €3, 8, 90, {923). Now we have to define NFA without E-more M= (Q, E, 8, 90, F) Q = { 90, 9, 929. C. closur (20, E) = {20} Z = {0,1,29. F' = { 90, 923. - (E-closure (90) = {90, 91, 92}) contains à state of F. 90 [90,9,,92] 29,,92] [92] 9, 0. {9,923 {923 9 9 8929 E-clos we (21)= 39,93

 $\mathcal{E} - closum (9_1) = \{9_2\}$ $\mathcal{S}(9_0, \epsilon) = \mathcal{E} - closume (9_0)$ $= \{9_0, 9_1, 9_2\} \quad | \mathcal{S}(9_3, \epsilon) = \{9_2\}$

 $\delta(a_1, \epsilon) = \{a_1, a_2\}$

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F = 390,923
```

8 (90,0) = E-closure (8(90,0)) = e-dosme (8(8(90, E), 0)_ = E-closure (8(90,9,923,0). = E-closure (& (90,0) U & (9,,0) U & (92,0)) = E-clome ({ 903 U \$ U \$). = 290,9,1929 δ (90,1) = e-closure (8 (90,1)) = E-closure (8 (8 (90, E), 1). = E-closure (8 { 90,9,929,1). = 6-closure (:8 (90,1) 08 (9,,1) 08 (92,1) = E-closure (\$ U { 9, } U \$) = { 9, , 9; }

8' (90,2) = E-closure (8 (90,2)). = : E - closure (8 (8 (90, E), 2). = e-closure (8 (? 90, 9, ,923, 2). = E-closure (S (90,2) U S (9,,2) US (9,,2)) = e = closure (9 U \$ U { 92 }). - 29,7

8'(91,0) = &-closuie (8 (91.0)). = e-closure: (S(S(91,6),0) = e-closue (8. £9,,923,0) - e-cloruso CS Ca ains ca mi

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= 9.
S(9,,1) = e-closus (8(9,,1))
            = e-closue (8 (8 (9, 50), 1).
           = e-closure (8 ( fq, , 9, 3, 1).
             = e-closus (8 (9,,1) U 5 (92,1))
             = e-closure ( { 2,3 U 9)
             = 99, 927
δ'(9,2) = e-closure (·δ(9,2)).
              = E-closure ( & ( & ( q, , E), 2)
              = E-closure (8 ( § 9, , 9, 3, 2).
               = E-closure (8(9,,2)U8(92,2))
               = E-closure ( p. U {92}).
               = [92 4
               = e-closure ( & ( & ( 92, E), Q).
               = E-closue (8( { 9, 3, 0))
                = e-closure ( )
                = \phi.
              = e-closure (8 (8 (92, E), 1.)
               = e-closure (8 (8929,1).
```

= 0.

= E-closure (p):

8 (92,0)

8 (9211)

