

ROCK PAPER SCISSOR SIMULATION

MY IDEA

- According to my idea, the no of states in the output DFA is same as the number of states in input DFA
- Each state S_i will have
 - The DFA plays in the current round
 - The state it goes to when the opponent plays R,P,S respectively.

Let us take an example input DFA

- 5

R 4 2 3

P 5 3 4

S 4 2 2

R 1 5 3

S 2 1 5

Output DFA

- 5

P - - -	P wins R
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S - - -	S wins P
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R - - -	R wins S
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P - - -	P wins R
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R - - -	R wins S
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- Consider the state in row 1
- Our DFA plays P in the current round.

If input DFA plays R we transition to same state when our DFA plays P

If input DFA plays P we search for P in the below states and output the same state as it when our DFA plays P

Similarly for S.

r p s

• P 2 3 2

r p s

R 4 2 3

P 5 3 4

S 4 2 2

R 1 5 3

S 2 1 5

r p s

- S 3 4 2

r p s

R 4 2 3

P 5 3 4

S 4 2 2

R 1 5 3

S 2 1 5

r p s

- R 1 5 4

r p s

R 4 2 3

P 5 3 4

--S 4 2 2--

R 1 5 3

S 2 1 5

r p s

• P 5 3 1

r p s

R 4 2 3

P 5 3 4

S 4 2 2

--R 1 5 3--

S 2 1 5

r p s

- R 4 5 2

r p s

R 4 2 3

P 5 3 4

S 4 2 2

R 1 5 3

--S 2 1 5--

OUTPUT DFA

- 5

P 2 3 2

S 3 4 2

R 1 5 4

P 5 3 1

R 4 5 2