Problem

Let $E_{\text{REX}\uparrow} = \{\langle R \rangle |$

Step-by-step solution

Step 1 of 1

As it is known that **"the problem of any** $\mathbf{EXSPACE}$ **- complete cannot be in** $\mathbf{PSPACE}$ **or** In other words, it can be said that **"** $\mathbf{PSPACE} \subsetneq \mathbf{EXSPACE}$**"**.

• Now, consider the statement which is given below:

$E_{REX\uparrow} = \{\langle R \rangle \mid R \textbf{ is a regular expression with exponentiation and } L(R) = \varnothing\}$

• The above statement show that R **is a regular expression** and the language, which contains this regular expression, consists NULL value.

• By applying the concept of intractability, it can be said that $E_{REX\uparrow}$ **is intractable** because it can be demonstrated in such a manner that it is complete for the class $\mathbf{EXSPACE}$.

• Now, from the above discussion, it may be concluded that "any $\mathbf{EXSPACE}$ **- complete problem cannot be in** $\mathbf{PSPACE}$ **and it is much less in** P".

• Otherwise, $\mathbf{PSPACE}$ will be same as $\mathbf{EXSPACE}$**,** which is contradicting the corollary that is discussed above.

As it is explained above that" any $\mathbf{EXSPACE}$ **- complete problem is much less in** P". Therefore, it can be said that $\mathbf{E}_{\mathbf{REX}\uparrow} \in \mathbf{P}$.

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