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Exercício 15

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Introduction to the Theory of Computation

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Solução ✓ Certificado

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Two errors. First, star of any language contains string ε, even if the starting language does not contain it. But adding rule $S \to SS$ does not add string ε into language.

Second thing is more subtle, and concerns the case when S recursively calls itself. The simplest case is grammar

$$S \to aSb \mid \varepsilon$$

which generates infamous language $\{\, \mathtt{a}^n \mathtt{b}^n \mid n \geq 0 \,\}$. Here adding rule $S \to SS$ causes grammar to include strings such as $\mathtt{aababb}$, which are obviously not from $\{\, \mathtt{a}^n \mathtt{b}^n \mid n \geq 0 \,\}^* = \{\, \mathtt{a}^{n_1} \mathtt{b}^{n_1} \ldots \mathtt{a}^{n_k} \mathtt{b}^{n_k} \mid n_1, \ldots, n_k \geq 0 \,\}$.

Resultado   2 de 2

There are two fatal errors in this kind of careless reasoning.

Avaliar esta solução

☆ ☆ ☆ ☆ ☆

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