

Computability Assignment

Year 2012/13 - Number 7

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1 Question

Prove that the following set is not λ -definable.

$$A = \{\#M \mid M \text{ has a } \beta\text{-normal form}\}$$

(Hint: show that, if A were λ -definable, then also K_λ would be λ -definable, hence obtaining a contradiction.)

1.1 Answer

Write your answer here.

2 Question

Let A be a λ -definable set. Prove that

$$B = (A \cup \{b_1, \dots, b_n\}) \setminus \{c_1, \dots, c_m\}$$

is also λ -definable.

(Hint: do not reinvent the results we saw in class, just apply them.)

2.1 Answer

Write your answer here.

3 Question

Let A be a **non** λ -definable set. Prove that

$$B = (A \cup \{b_1, \dots, b_n\}) \setminus \{c_1, \dots, c_m\}$$

is also **non** λ -definable.

(Hint: prove the contrapositive. That is, prove that if B were λ -definable, then also A would be such.)

3.1 Answer

Write your answer here.