

# homework 4, task 1

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## 1 What to do

Make  $\beta$ -reduction of  $\lambda$ -term:

$$((\lambda a.(\lambda b.b\ b)\ (\lambda b.b\ b))\ b)\ ((\lambda c.(c\ b))(\lambda a.a))$$

## 2 Solution

$$((\lambda \mathbf{a}.(\lambda \mathbf{b}.\mathbf{b}\ \mathbf{b})\ (\lambda \mathbf{b}.\mathbf{b}\ \mathbf{b}))\ \mathbf{b})\ ((\lambda c.(c\ b))(\lambda a.a))$$

$$((\lambda b.b\ b)(\lambda b.b\ b))\ ((\lambda \mathbf{c}.(\mathbf{c}\ \mathbf{b}))(\lambda \mathbf{a}.\mathbf{a}))$$

$$((\lambda b.b\ b)(\lambda b.b\ b))((\lambda \mathbf{a}.\mathbf{a})\mathbf{b})$$

$$((\lambda b.b\ b)(\lambda b.b\ b))b$$