

Mathematics-Computer Science 4215H – Mathematical Logic

TRENT UNIVERSITY, Winter 2021

Assignment #Extra*

Due on Wednesday, 21 April.

Do the problem, straight out of the textbook⁰ (which explains the numbering), reproduced here for your convenience.

7.12 [Theorem 7.12] (Generalization On Constants) Suppose that c is a constant symbol, Γ is a set of formulas in which c does not occur, and φ is a formula such that $\Gamma \vdash \varphi$. Then there is a variable x which does not occur in φ such that $\Gamma \vdash \forall x \varphi_x^c$.¹ Moreover, there is a deduction of $\forall x \varphi_x^c$ from Γ in which c does not occur. [15]

[Total = 15]

* This is an extra assignment which, should you do it, will expand the pool from which your best ten assignments are chosen.

⁰ *A Problem Course in Mathematical Logic*, Version 1.6.

¹ φ_x^c is φ with every occurrence of the constant c replaced by x .