CSED433 Computational Logic – HW 2

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1 Matched Parentheses

1.1 Problem 1

Theorem 1. $((A \vee B) \supset C) \supset ((A \supset C) \wedge (B \supset C))true$

Proof. Case $\dfrac{}{\epsilon \ \mathsf{lparen}}\ Leps$ where $s = \epsilon$:

s mparen — by the rule *Meps*

Case $\dfrac{s_1 \ \mathsf{lparen} \qquad s_2 \ \mathsf{lparen}}{(s_1)s_2 \ \mathsf{lparen}}\ Lseq$ where $s = (s_1)s_2$:

s_1 mparen — by induction hypothesis on s_1 lparen

s_2 mparen — by induction hypothesis on s_2 lparen

(s_1) mparen — by the rule *Mpar* on s_1

$(s_1)s_2$ mparen — by the rule *Mseq* on (s_1) and s_2

□