universität innsbruck

Automata and Logic	26W	LVA 703302 + 703303
Lecture 4		November 13, 2026

Selected Solutions

3 (a) For example

$$\exists\, x.\, x = 0 \wedge P_a(x) \wedge \exists\, y.\, y = x + 1 \wedge P_b(y) \wedge$$
$$\exists\, z.\, z > y \wedge P_c(z) \wedge \forall\, w.\, z < w \to \neg(P_a(w) \vee P_b(w) \vee P_c(w))$$

(b) For example

$$\neg\big(\exists\, x.\, \exists\, y.\, \exists\, z.\, x \leqslant y \wedge y \leqslant z \wedge (\forall\, w.\, w < x \to P_a(w)) \wedge (\forall\, w.\, x \leqslant w \wedge w < y \to P_b(w)) \wedge$$
$$(\forall\, w.\, y \leqslant w \wedge w < z \to P_c(w)) \wedge (\forall\, w.\, z \leqslant w \to \neg(P_a(w) \vee P_b(w) \vee P_c(w)))\big)$$