

# Principles of Programming Languages - Homework 12

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## 1 Problem 1

(a)

$$t_1 \sqcup t_2 = \text{Any}$$

$$t_1 \sqcap t_2 = \perp$$

(b)

$$t_1 \sqcup t_2 = \{\}$$

$$t_1 \sqcap t_2 = \{\text{var f: number, const g: bool}\}$$

(c)

$$t_1 \sqcup t_2 = \{\}$$

$$t_1 \sqcap t_2 = \{\text{var f: number, const g: bool}\}$$

(d)

$$t_1 \sqcup t_2 = \{\text{var f: number, const g: \{\text{const h: any}\}}\}$$

$$t_1 \sqcap t_2 = \{\text{var f: number, const g: \{\text{var h: bool}\}}\}$$

(e)

$$t_1 \sqcup t_2 = \text{bool} \Rightarrow \text{any}$$

$$t_1 \sqcap t_2 = \text{bool} \Rightarrow \text{bool}$$

(f)

$$t_1 \sqcup t_2 = \text{any} \Rightarrow \text{any}$$

$$t_1 \sqcap t_2 = \perp$$