

COMP 3610/6361

23/8/2023

$(\text{raise } v) \quad (\text{raise } v)$   
 $\rightarrow ?$

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Subtyping

$\Gamma \vdash E : \text{nat} \quad \text{nat} <: \text{int}$

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$\Gamma \vdash E : \text{int}$

partial order

reflexive  $T \subseteq T$

transitive  $T \subseteq T' \wedge T' \subseteq T'' \Rightarrow T \subseteq T''$

antisymmetry  $T \subseteq T' \wedge T' \subseteq T \Rightarrow T = T'$

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By (s-ord 3) we have

$\{p:\text{int}, q:\text{int}\} \subseteq \{q:\text{int}, p:\text{int}\}$

$\{q:\text{int}, p:\text{int}\} \subseteq \{p:\text{int}, q:\text{int}\}$

but  $\{p:\text{int}, q:\text{int}\} \neq \{q:\text{int}, p:\text{int}\}$

$$\frac{T_1 <: T_1' \quad T_2 <: T_2'}{\quad}$$

$$T_1 \rightarrow T_2 <: T_1' \rightarrow T_2'$$

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$$\text{nat} <: \text{int}$$

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$$T \rightarrow \text{nat} <: T \rightarrow \text{int}$$

$$\text{nat} <: \text{int}$$

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$$\text{nat} \rightarrow T <: \text{int} \rightarrow T$$