

Addc

$$\frac{\Gamma \vdash x : \text{int} \triangleright_{\phi} \phi \quad \Gamma \vdash y : \text{int} \triangleright_{\phi} \phi}{\Gamma \vdash f : (\text{int} \times \text{int}) \rightarrow \text{int} \triangleright_{\phi} \phi}$$

$(\text{ITZ } x) : \text{int} \rightarrow \text{bool}$   
 $(\text{P } x) : \text{int} \rightarrow \text{int}$   
 $(\text{S } x) : \text{int} \rightarrow \text{int}$   
 $\text{ITE} : \text{bool} \times \text{int} \times \text{int} \rightarrow \text{int}$   
 $(e \ x \ y)$

$(f \text{ (Px) } (S_y)) : (int \rightarrow int) * (int \rightarrow int) \rightarrow int$   
 $\Phi_{similarity} (f \text{ (Sx) } (P_y)) : (int \rightarrow int) * (int \rightarrow int) \rightarrow int$

Q Let  $A = \text{ITE} \langle (G \vee 2x), (f(P_x) \wedge (S_y)), f(S_2) \wedge (P_y) \rangle$

Let  $T = ( \text{init} \rightarrow \text{board} ) * ( (\text{init} \rightarrow \text{init}) * (\text{init} \rightarrow \text{init}) \rightarrow \text{init} ) * ( (\text{init} \rightarrow \text{init}) * (\text{init} \rightarrow \text{init}) \rightarrow \text{init} ) \rightarrow \text{init}$

$$\text{ITE}(I_2, y, A)$$

$$= (\text{int} \rightarrow \text{bool}) * \text{int} * (T) \rightarrow \text{int}$$

$$\Delta_{xy} [\text{ITE}(I_2, y, A)]$$

$$: \text{int} * \text{int} \rightarrow (\text{int} \rightarrow \text{bool}) * \text{int} * T \rightarrow \text{int}$$

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$$(\text{int} * \text{int}) \rightarrow \text{int} \rightarrow (\text{int} * \text{int}) \rightarrow (\text{int} \rightarrow \text{bool}) * \text{int} * T \rightarrow \text{int}$$

where  $T$  ~~is a given~~ can be substituted from before