

# CS 490 — Translation

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## 1 Views

$$\begin{aligned} \mathcal{D}[\text{view } T.v(\tau_1 x_1, \dots, \tau_n x_n)\{y_1 = x_1; \dots; y_n = x_n\}] = \\ & \text{method Object } \llbracket v\$() \rrbracket \{ \\ & \quad \text{Object } \llbracket o = \text{new Object } [n]; \\ & \quad o[0] = \text{wrap } y_1; \\ & \quad \vdots \\ & \quad o[n-1] = \text{wrap } y_n; \\ & \quad \text{return } o; \\ & \} \\ \\ \mathcal{D}[\text{view } T(\tau_1 x_1, \dots, \tau_n x_n)\{y_1 = x_1; \dots; y_n = x_n\}] = \\ & \text{method Object } \llbracket T\$() \rrbracket \{ \\ & \quad \text{Object } \llbracket o = \text{new Object } [n]; \\ & \quad o[0] = \text{wrap } y_1; \\ & \quad \vdots \\ & \quad o[n-1] = \text{wrap } y_n; \\ & \quad \text{return } o; \\ & \} \\ & T(\tau_1 x_1, \dots, \tau_n x_n)\{y_1 = x_1; \dots; y_n = x_n\} \end{aligned}$$

## 2 Switch

$$\begin{aligned} \mathcal{D}[\text{switch } v \{ \text{case } \tau_1 R_1; \dots; \text{case } \tau_n R_n \}] = \\ & \text{Object } \llbracket o; \\ & \mathcal{D}[\tau'_1(\tau_{1,1} R_{1,1}, \dots, \tau_{1,n_1} R_{1,n_1}), \dots, \tau'_k(\tau_{k,1} R_{k,1}, \dots, \tau_{k,n_k} R_{k,n_k})] \\ \\ \mathcal{D}[\tau'_1(\tau_{1,1} R_{1,1}, \dots, \tau_{1,n_1} R_{1,n_1}), \dots, \tau'_k(\tau_{k,1} R_{k,1}, \dots, \tau_{k,n_k} R_{k,n_k})] = \\ & \text{if } (v \text{ instanceof } \tau'_1) \{ \\ & \quad \tau'_1 v\$ = (\tau'_1)v; \\ & \quad \mathcal{D}[\tau_{1,1} R_{1,1}, \dots, \tau_{1,n_1} R_{1,n_1}] \tau'_1 \\ & \} \text{ else if } (v \text{ instanceof } \tau'_2) \{ \\ & \quad \vdots \\ & \} \text{ else if } (v \text{ instanceof } \tau'_k) \{ \\ & \quad \tau'_k v\$ = (\tau'_k)v; \\ & \quad \mathcal{D}[\tau_{k,1} R_{k,1}, \dots, \tau_{k,n_k} R_{k,n_k}] \tau'_k \\ & \} \end{aligned}$$