Ocaml

KOSMOS

매개 변수가 여러 개인 함수

$$
\begin{aligned}
F &\to E \\
E &\to \cdots \\
&\quad \mid \text{let } f(x_1, x_2, \cdots) = E \text{ in } E \\
&\quad \mid E(E_1, E_2, \cdots)
\end{aligned}
$$

매개 변수가 여러 개인 함수

$$Val = Unit + N + B + Procedure + Loc$$
$$Procedure = (Var \times Var \times \cdots) \times E \times Env$$
$$Env = Var \to Val$$
$$Mem = Loc \to Val$$

매개 변수가 여러 개인 함수

$$\frac{[f \mapsto (f,(x_1,x_2,\cdots,x_n),E_1,\rho)]\rho,\sigma \vdash E_2 \Rightarrow v,\sigma'}{\rho,\sigma \vdash \text{let } f(x_1,x_2,\cdots,x_n)=E_1 \text{ in } E_2 \Rightarrow v,\sigma'}$$

$$\frac{\rho,\sigma \vdash E_0 \Rightarrow \left(f,(x_1,x_2,\cdots,x_n),E,\rho'\right),\sigma_0 \quad \begin{matrix}\rho,\sigma_0 \vdash E_1 \Rightarrow v_1,\sigma_1 \\ \rho,\sigma_1 \vdash E_2 \Rightarrow v_1,\sigma_2 \\ \vdots \\ \rho,\sigma_{n-1} \vdash E_n \Rightarrow v_n,,\sigma_n\end{matrix} \quad \left[\begin{matrix}x_1 \mapsto v_1, \\ x_2 \mapsto v_2, \\ \vdots \\ x_n \mapsto v_n, \\ f \mapsto \left(f,(x_1,x_2,\cdots,x_n),E_1,\rho'\right)\end{matrix}\right]\rho',\sigma_n \vdash E \Rightarrow v,\sigma'}{\rho,\sigma \vdash E_0(E_1,E_2,\cdots,E_n) \Rightarrow v,\sigma'}$$