1: Theory

Formation Rule:

$$\frac{\tau \text{ is a type}}{LIST(\tau) \text{ is a type}} \text{ LISTFORMATION}$$

Introduction Rules:

$$\frac{\Gamma_{\xi,\phi,\rho} \vdash e_1 : \tau \qquad \Gamma_{\xi,\phi,\rho} \vdash e_2 : LIST(\tau)}{\Gamma_{\xi,\phi,\rho} \vdash LCONS(e_1, e_2) : LIST(\tau)} \text{ LISTCONS}$$

$$\frac{\Gamma_{\xi,\phi,\rho} \vdash e : \tau}{\Gamma_{\xi,\phi,\rho} \vdash LEMPTY(e) : LIST(\tau)} \text{ EMPTYLIST}$$

Elimination Rules:

$$\frac{\Gamma_{\xi,\phi,\rho} \vdash e_1 : LIST(\tau)}{\Gamma_{\xi,\phi,\rho} \vdash LNULL?(e_1) : BOOL} \text{ LISTNULL?}$$

$$\frac{\Gamma_{\xi,\phi,\rho} \vdash e_1 : LIST(\tau)}{\Gamma_{\xi,\phi,\rho} \vdash LCAR(e_1) : \tau} \text{ LISTCAR}$$

$$\frac{\Gamma_{\xi,\phi,\rho} \vdash e_1 : LIST(\tau)}{\Gamma_{\xi,\phi,\rho} \vdash LCDR(e_1) : LIST(\tau)} \text{ LISTCDR}$$