Propose plausible mechanisms for the following reactions

1)

$$R^{1} \xrightarrow{\text{SiMe}_{2}} \begin{array}{c} \text{7.5 mol } \% \ \text{Pd(OAc)}_{2} \\ \text{15 mol } \% \ \text{P(c-$C}_{6}\text{H}_{11}\text{)}_{3} \\ \text{THF, reflux} \end{array} \qquad \begin{array}{c} \text{SiMe}_{2} \\ \text{O} + \text{R}^{1} \\ \text{R}^{2} \end{array} \qquad \begin{array}{c} \text{SiMe}_{2} \\ \text{O} \\ \text{R}^{2} \end{array}$$

2)

$$RO_2C$$
 N
 CO_2R
 PPh_3
 $toluene, N_2$
 R^1
 R^2
 R^2
 R^2
 RO_2C
 N
 R^2
 R^3
 RO_2C
 R^3
 R^4
 RO_2C