Group Meeting Problems - March 10, 2011

1. Provide a mechanism for the following transformation and rationalize the observed diastereoselectivity.

2. Provide a mechanism for the following transformation consistent with the observed deuterium incorporation.

$$\begin{array}{c}
O \\
N \\
D \\
D \\
O \\
N \\
\hline
10\% \ Pd_2(dba)_3, \ 20\% \ P(o\text{-tolyl})_3 \\
\hline
3 \ equiv \ KOAc, \ DMF, \ 120 \ ^{\circ}C \\
\end{array}$$

$$X = 0.93 \ D$$