1. Please provide a plausible mechanism for the following transformation:

PhIO (2.1 equiv)

R = aryl, OMe
R<sup>1</sup> = aryl, alkyl, EtOCO

PhIO (2.1 equiv)

R = 
$$\frac{18 \text{ examples}}{\text{CF}_3}$$

up to 87% yields

2. Please provide a plausible mechanism for the following transformation. In your cycle please explain where the side products may be formed.