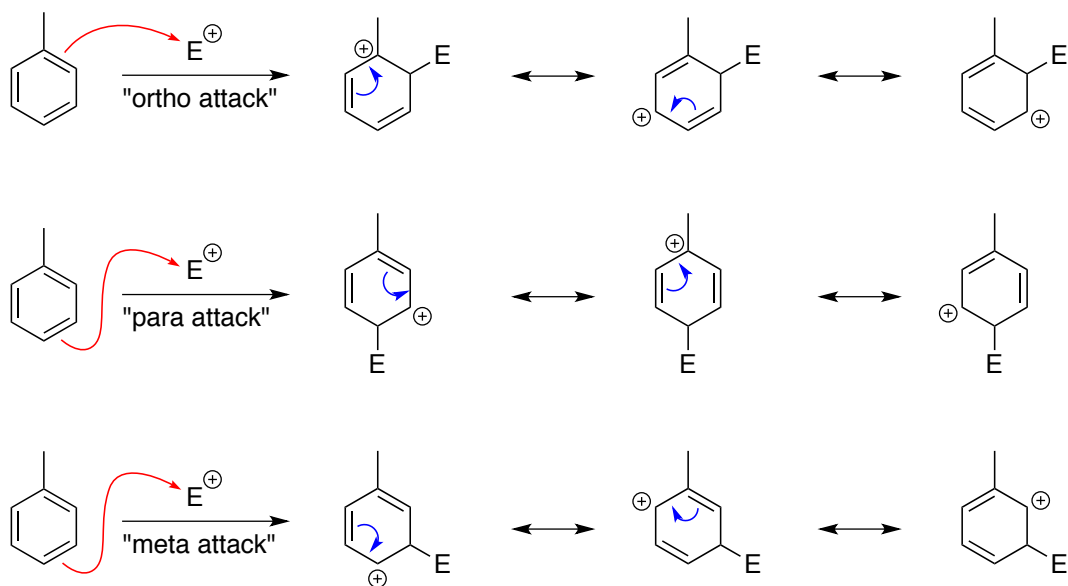


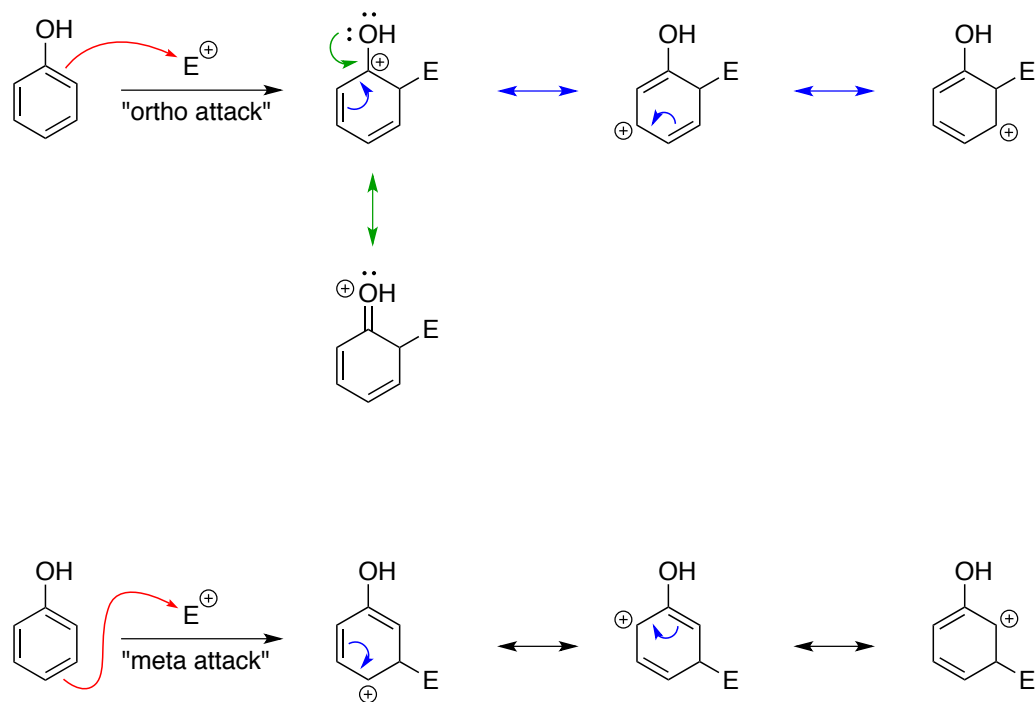
# Mechanistic Analysis of Directing Group Effects

## 1. Ortho/Para Directors – Weak Activating Group



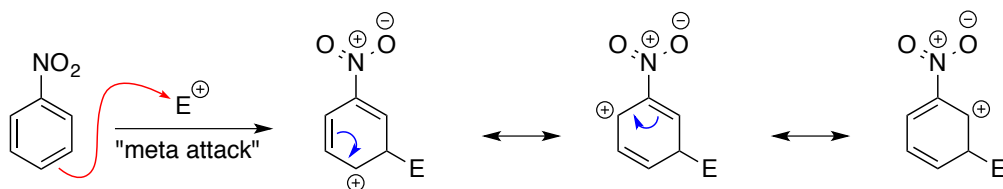
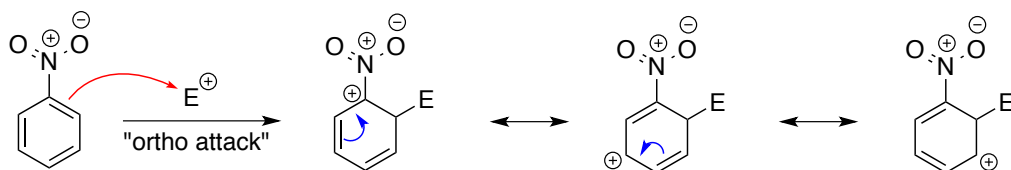
# Mechanistic Analysis of Directing Group Effects

## 2. Ortho/Para Directors – Strong Activating Group



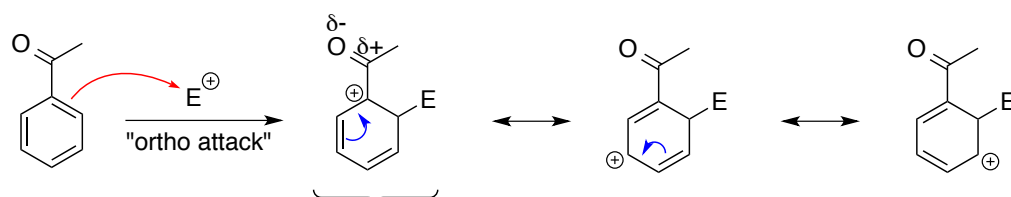
## Mechanistic Analysis of Directing Group Effects

### 3. Meta Directors – Strong Deactivating Group

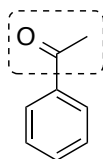


## Mechanistic Analysis of Directing Group Effects

### 4. Meta Directors – Moderate Deactivating Group



ortho (and para) attack gives a resonance structure that puts the carbocation (+) next to a  $\delta+$ , which is destabilizing.



meta director because meta attack does not give an especially destabilized resonance structure.