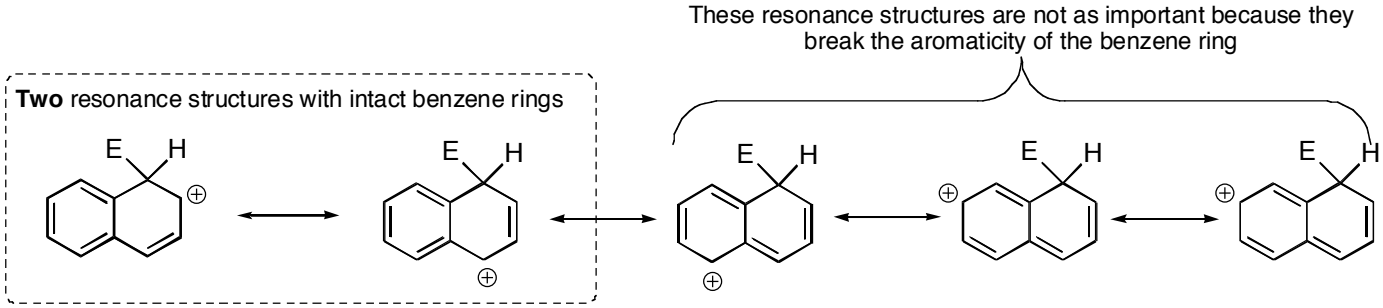
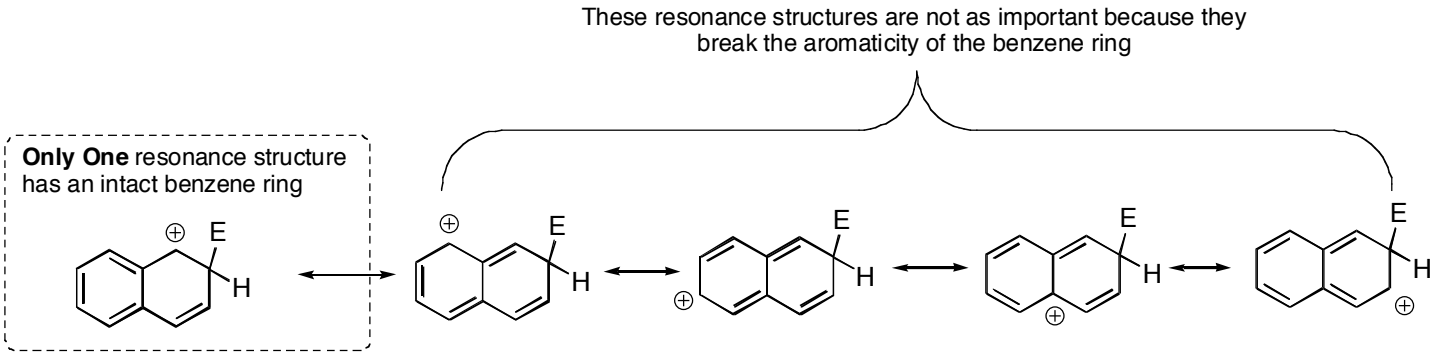
1. Substitution takes place at the α-carbon because it has more resonance structures with intact benzene rings.

α-intermediate



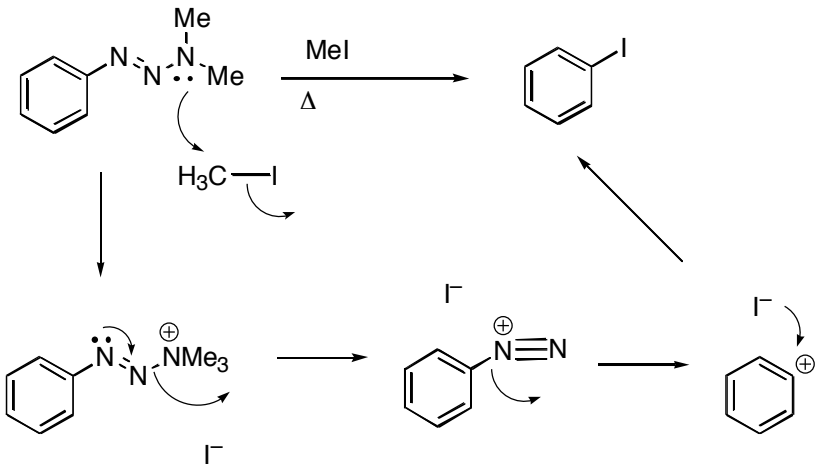
in contrast, substitution at the β-carbon gives an intermediate with only one resonance structure with an intact benzene.

β-intermediate



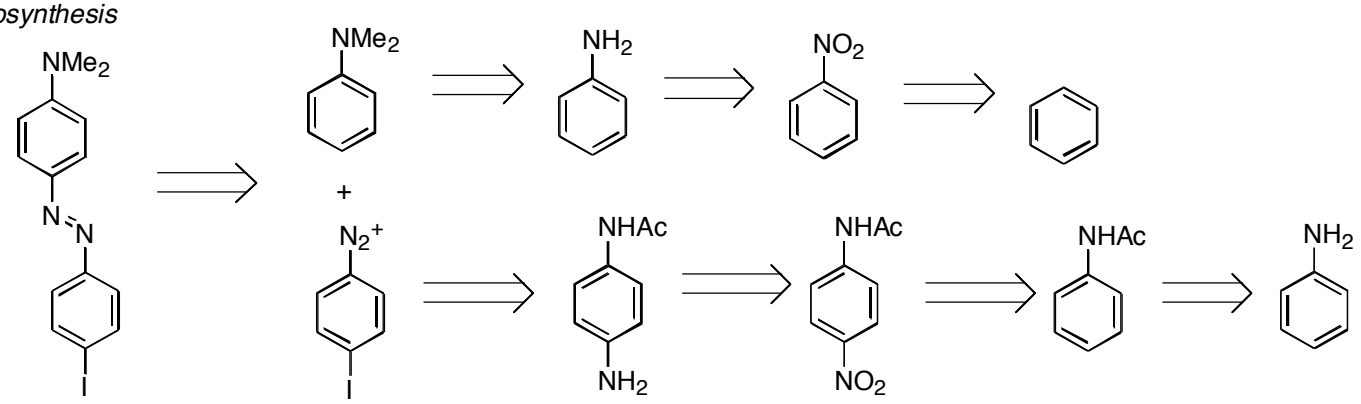
Thus, while both situations have the same quantity of possible resonance forms, the α-intermediate has 'higher quality' resonance structures available

2. Provide a detailed mechanism

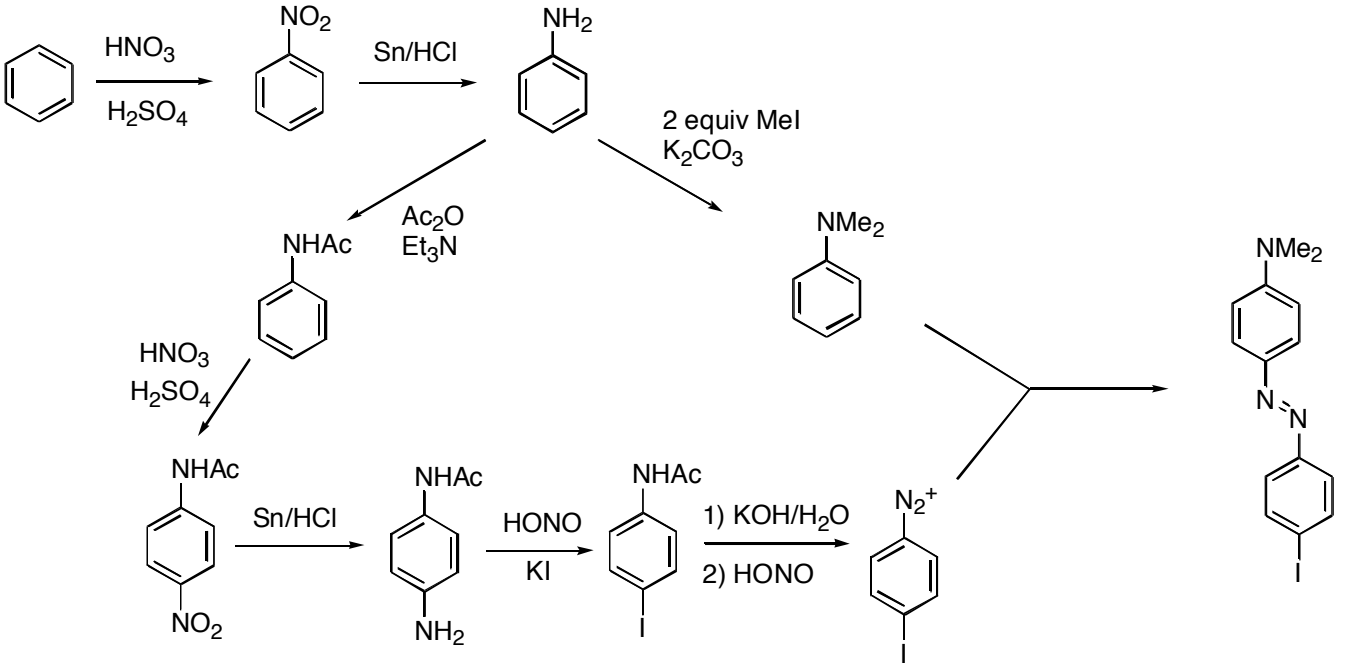


3a

retrosynthesis

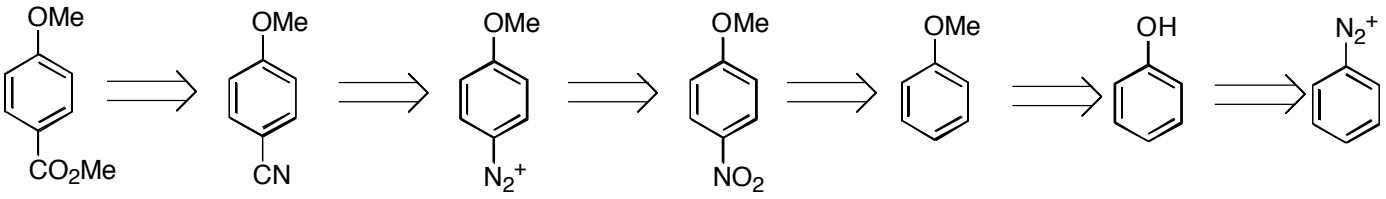


forward synthesis

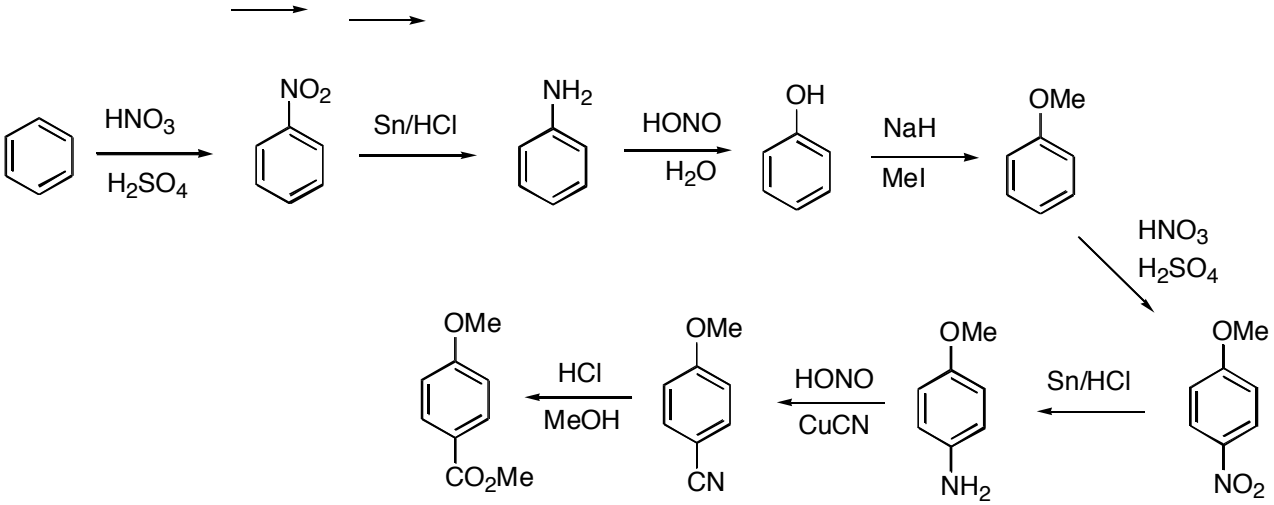


3b

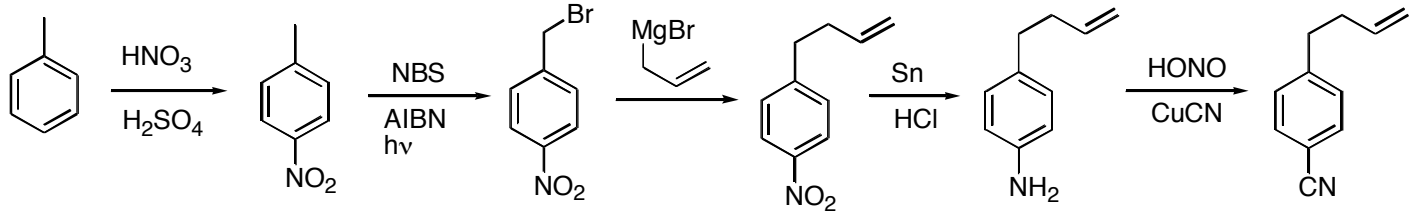
retrosynthesis



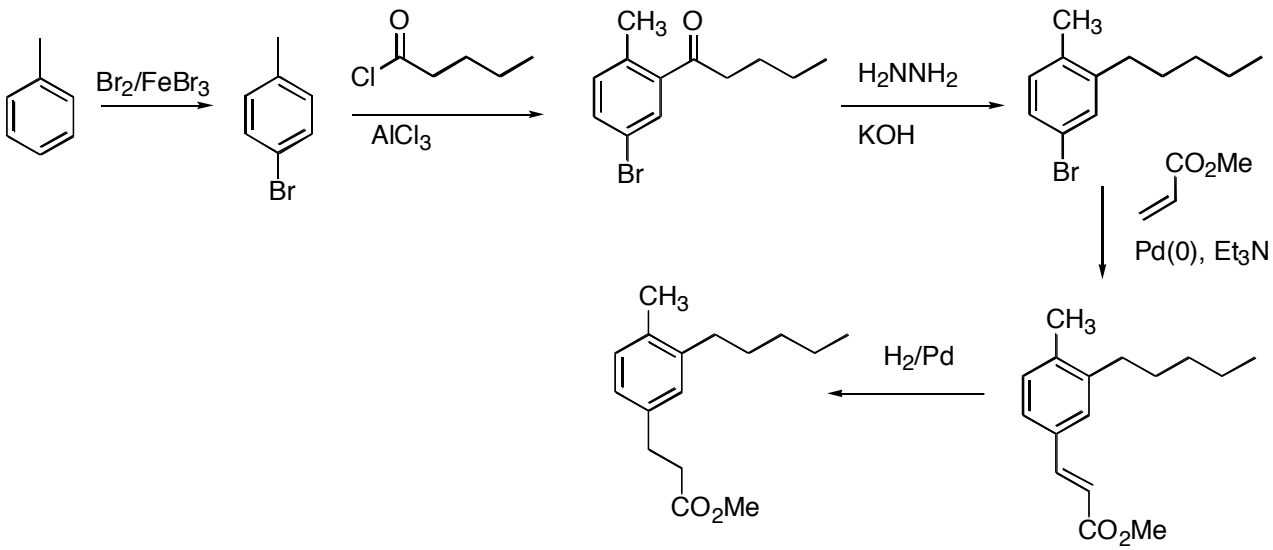
forward synthesis



4a



4b


Br2/FeBr3
Br
O
Cl
AlCl3
CH3
O
Br
H2NNH2
KOH
CH3
Br
CO2Me
Pd(0), Et3N
CH3
CO2Me
H2/Pd
CH3
CO2Me