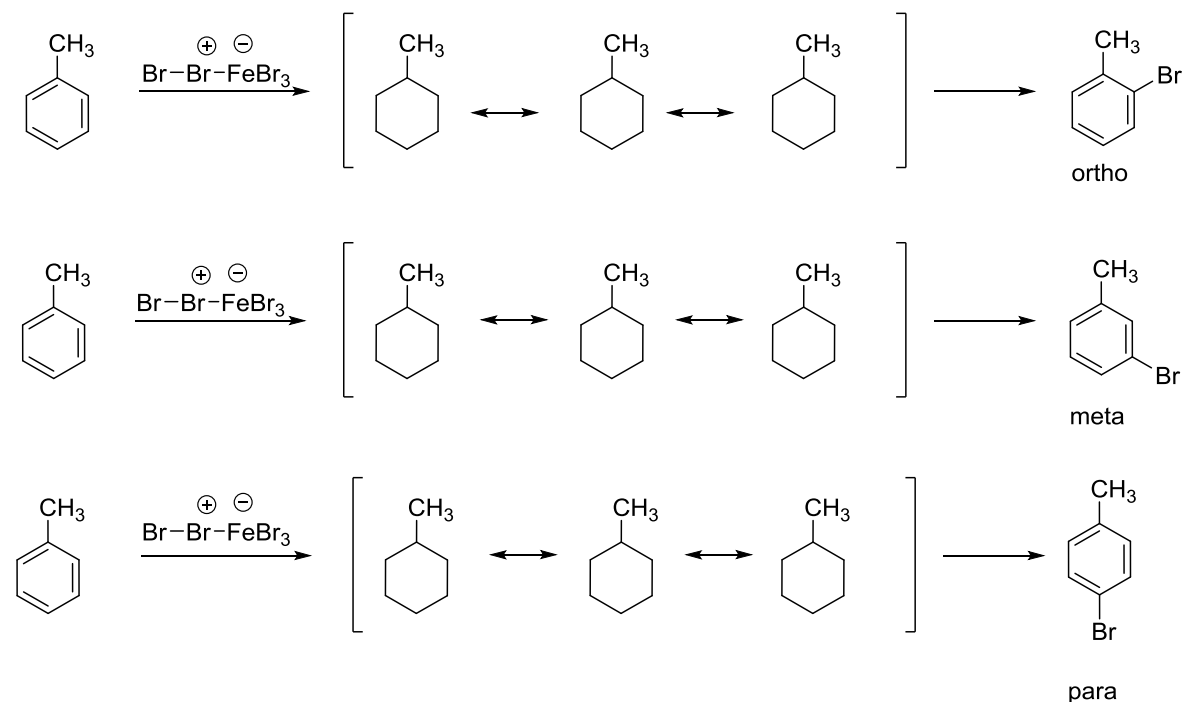


Organic II Chemistry - Electrophilic Aromatic Substitution (EAS) Worksheet

Complete the resonance structures for each sigma complex resulting from electrophilic aromatic substitution at the ortho, meta, and para positions as shown below.



Based on the results of your analysis of the stability of each intermediate, what substitution position(s) are activated by electron donating groups (EDGs)?

What overall effect do EDGs have on rate of EAS substitution reactions?

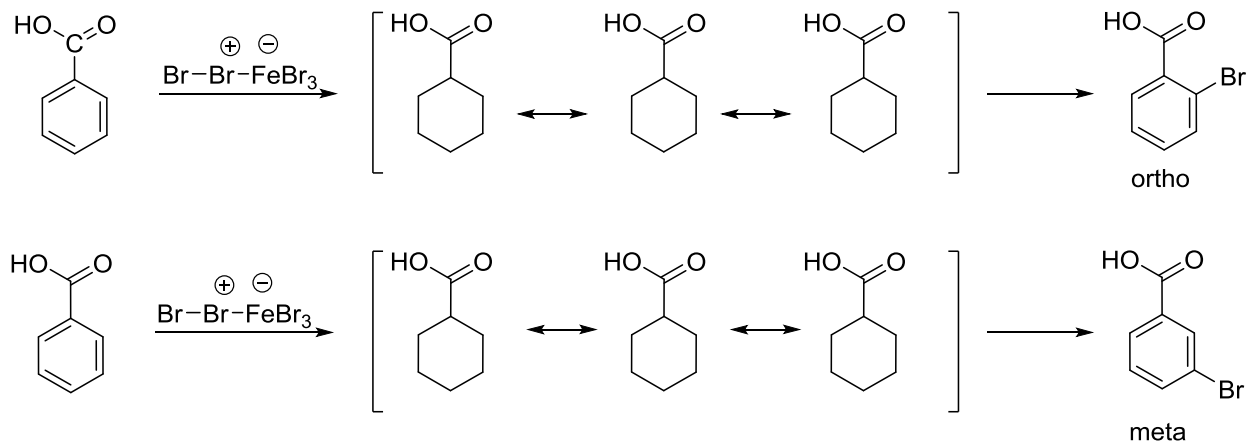
Perform the same analysis for EAS of anisole. What extra stability does a methoxy group provide over a methyl group?



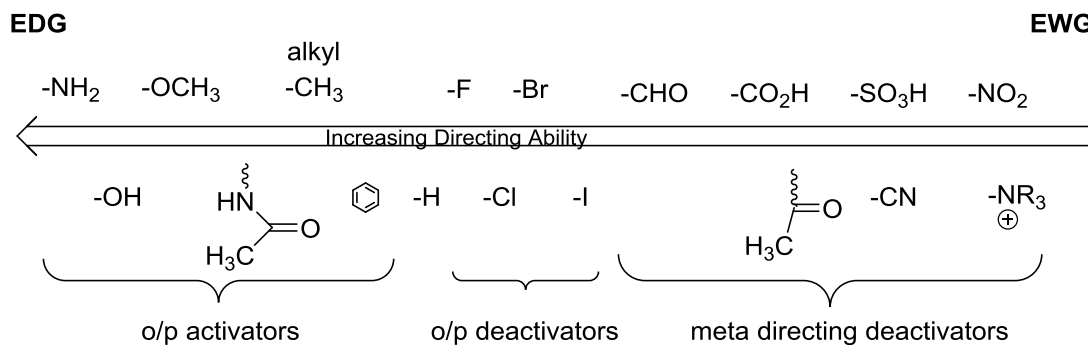
Based on the results above, what might the intermediate of para substitution resemble?

Is a carboxylate group electron donating or electron withdrawing toward the aromatic ring?

Complete the sigma complex intermediate structures as performed previously.



Substitution at which position is favored when an electron withdrawing group (EWG) is present on an aromatic ring?



Use the chart above to predict the site(s) at which electrophilic aromatic substitution will occur on the following multisubstituted aromatic compounds.

