

Week 8

Alcohols, Ethers, and Epoxides

8.1 Office Hours (Salinas)

- 2/28:
- Does $\text{H}_2 + \text{Pd/C}$ hydrogenate ketones or not? Conflict between Lecture 11 and 2020 Exam 2A Q1e.
 - Either way.
 - $\text{H}_2 + \text{Pd/C}$ hydrogenates *benzylic* ketones only; it will leave ketones that are farther away from the benzene ring alone.
 - $\text{Zn(Hg)} + \text{HCl}$ hydrogenates all ketones, but nothing else.
 - When do alkenes in PAHs get hydrogenated?
 - Ones that are added onto the Rocks of Gibraltar molecules.
 - Do we have to know that aryl amines present a problem in F-C alkyl/arylations? It seems like there's a lot of content on this exam that BCD never went over.
 - Things like this probably won't show up on the exam.
 - Can we use $\text{HCN} + \text{NaCN}$ to substitute CN ?
 - This would work, but Sandmeyer is the go-to.
 - How do you indicate you want to do something twice (e.g., bromination on 2020 Exam 2A Q3a)?
 - Write (2x): For example, " $\text{Br}_2 / \text{FeBr}_3$ (2x)".
 - Is it KMnO_4 (2020 Exam 2A answer key), $\text{KMnO}_4 / \text{H}_2\text{O}$ (class), $\text{KMnO}_4 / \text{NaOH} + \Delta$ (PSet 4 key), or $\text{KMnO}_4 / \text{NaOH} + \Delta$ followed by H_3O^+ (PSet 4 key) for benzoic acid formation?
 - $\text{KMnO}_4 + \text{H}_2\text{O}$ is pretty solid.
 - 2020 Exam 2A Q3c: Is it preferable to use $\text{S}_{\text{N}}\text{Ar}$ or a novel Sandmeyer reaction? What are the limits of the Sandmeyer reaction?
 - Note that we can achieve meta addition of an amine when an o/p-director is present by brominating para and then using the benzyne intermediate.
 - 2020 Exam 2A Q3d: Is $\text{SnCl}_2 / \text{H}_2\text{O}$ selective reduction of nitro groups?
 - Perhaps, Omar will get back to me on whether to use $\text{SnCl}_2 / \text{H}_2\text{O}$ or $\text{H}_2 + \text{Pd/C}$.
 - When adding an alkane via F-C alkylation to later be transformed into a benzoic acid, is it preferable to use 2-chloropropane for some reason?

- Anything's fine.
- PSet 4 2021 1f/h:

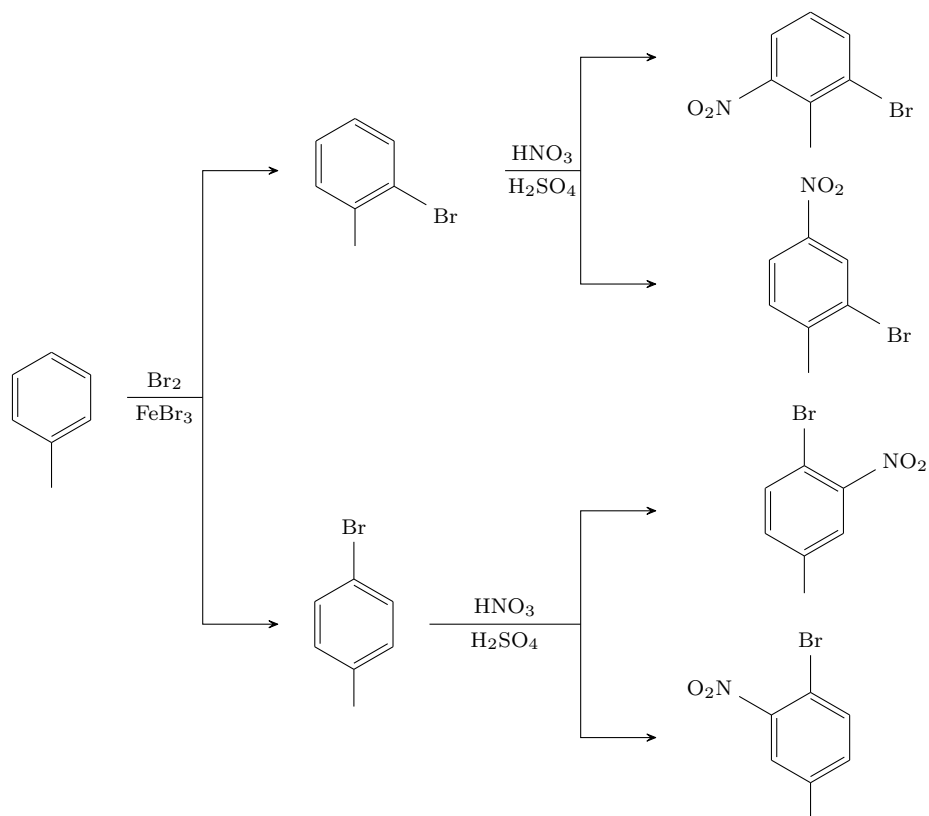


Figure 8.1: Major and minor synthesis products.

- When asked to determine major/minor when it could be kind of ambiguous, assume equimolar concentrations of reactants after the step before the last step.
- In the example above, notice how the two products on the bottom are identical, so they constitute the major product.