Introduction to Organic Reactions

UCI Chem 51A
Dr. Link

Goals

- After this lesson you should be able to:
  - Identify general types of organic reactions
  - Differentiate between heterolytic and homolytic bond cleavage and formation
  - Identify and differentiate between types of intermediate species common to organic reactions

GChem Reaction Categories

- In general chemistry we had some types of reactions:
  - Single & double displacement (ions!)
  - Oxidation & reduction
  - Decomposition & synthesis

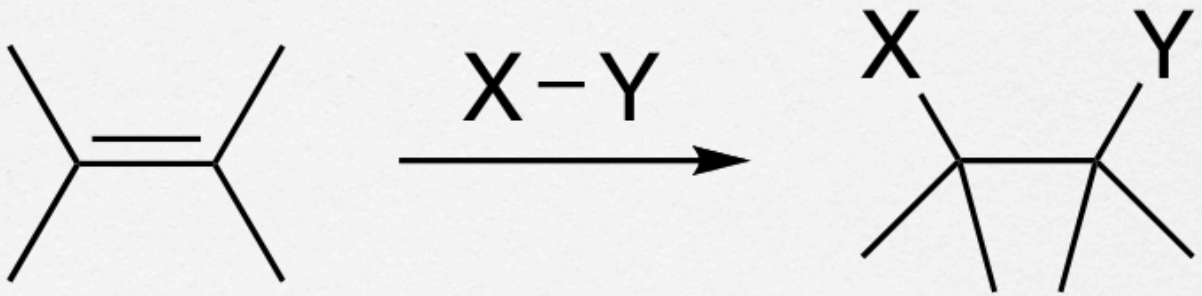
OChem Reaction Categories

- Categorize reactions by bonds being formed and broken
  - Addition
  - Elimination
  - Substitution
  - Also oxidation & reduction

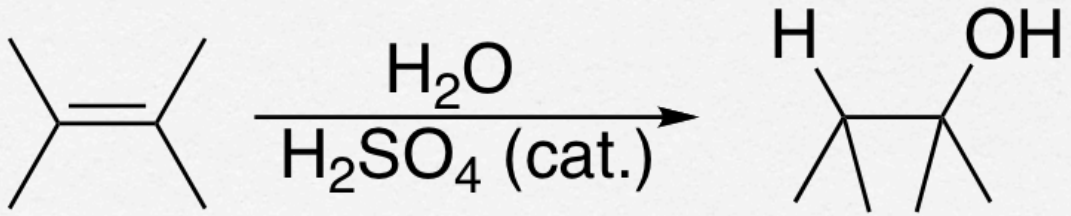
Addition

Broken

Formed



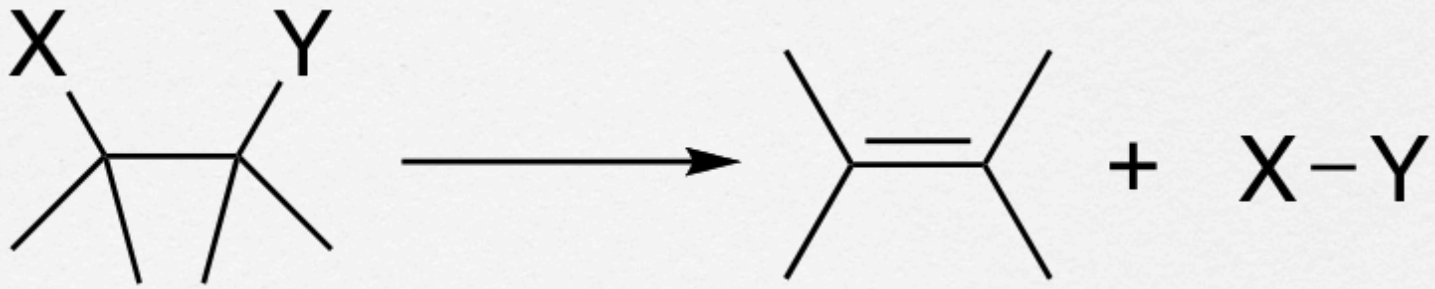
Example



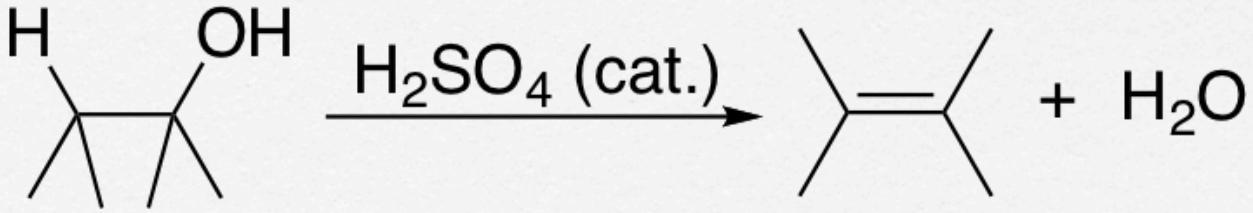
Elimination

Broken

Formed



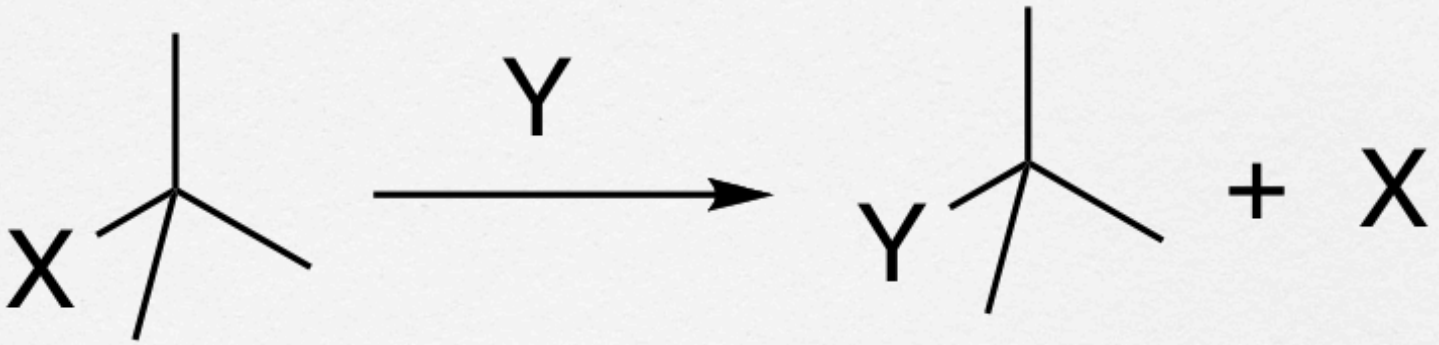
Example



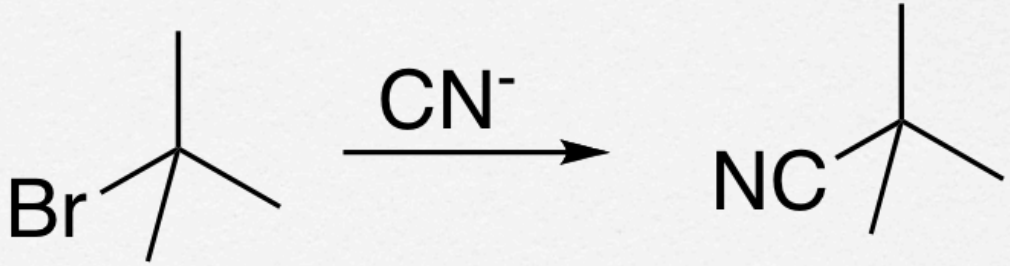
Substitution

Broken

Formed



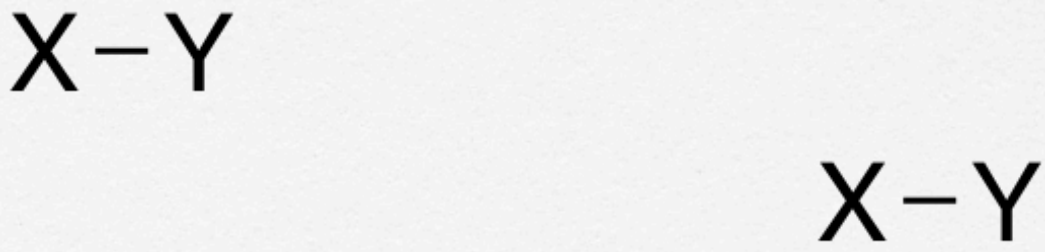
Example



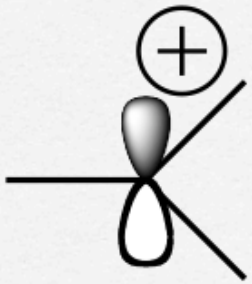
Ways To Break And Make Bonds

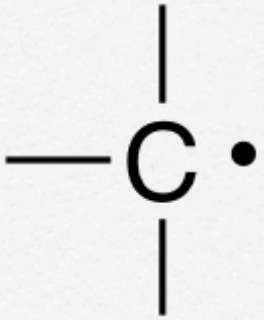
- Even split (homolysis)

- Uneven split (heterolysis)



Types of Intermediate Species





Arrows, Arrows, and More Arrows

Wrapping Up

- Practice identifying reactions as addition, elimination, or substitution
- Practice drawing and identifying types of bond cleavage and formation
- Practice identifying common intermediate species
- Practice identifying meanings of arrows