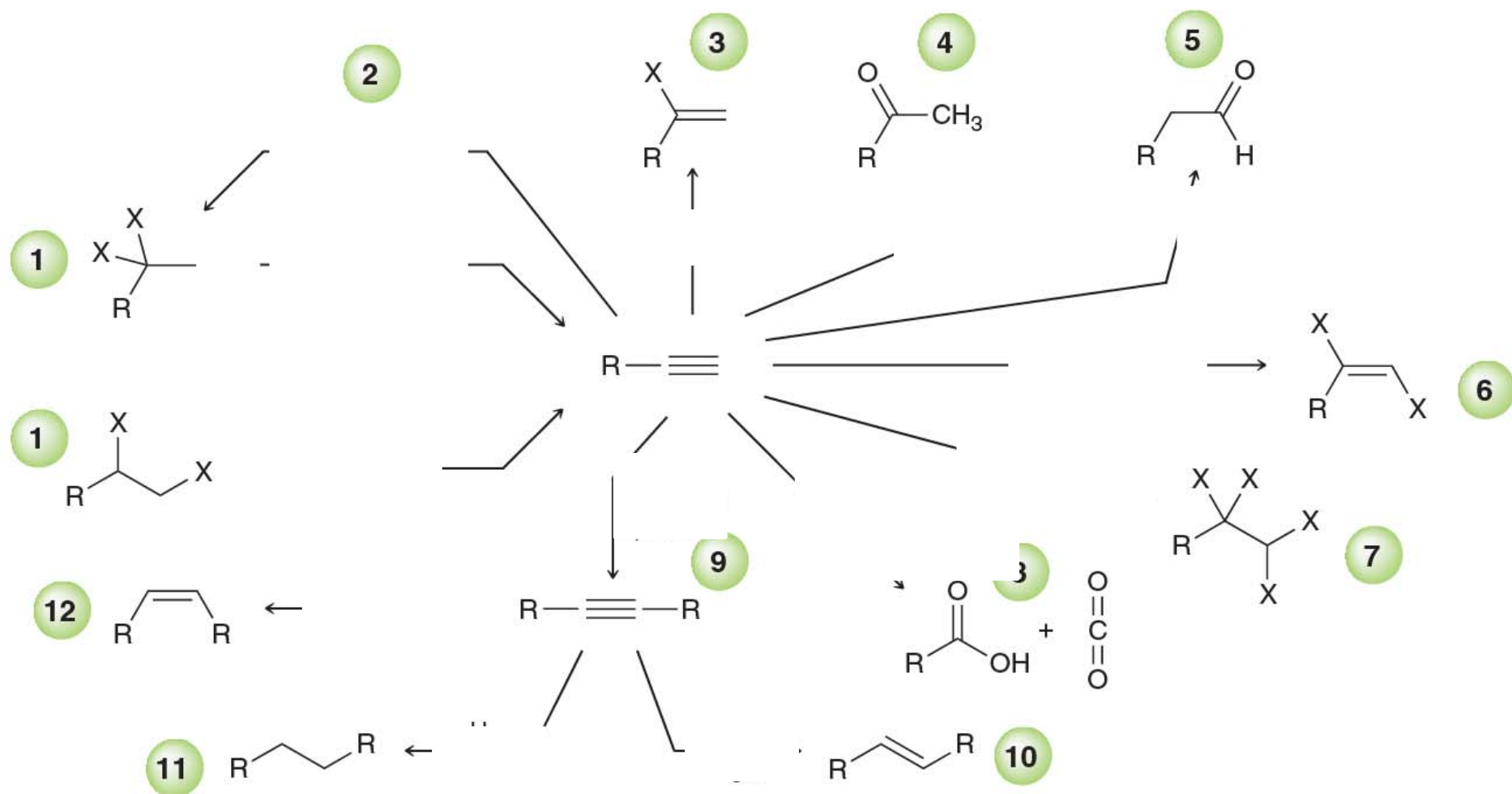


Chapter 10: Alkyl Halides Part 1: Preparing Alkyl Halides

Today – Chapter 10(10.1-10.4)

- **Making Alkyl Halides (Review)**
- **Radicals**
- **Patterns in Radical Mechanisms**
- **Anti-Markovnikov Hydrohalogenation**
- **Radical halogenation**

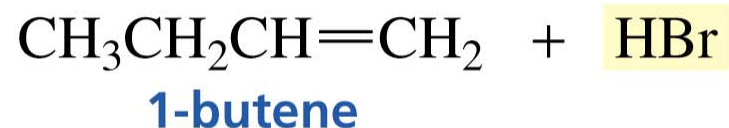


How do we Synthesize 1-Bromobutane?

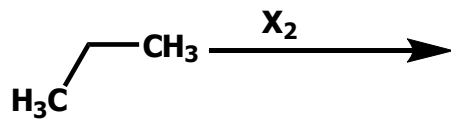
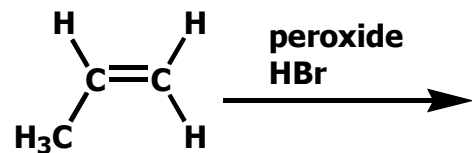
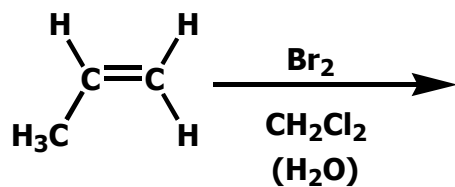
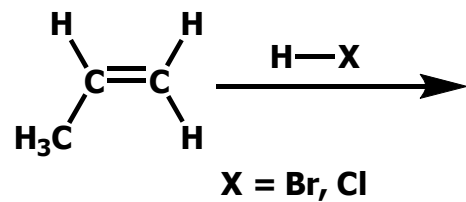
Markovnikov



Anti- Markovnikov?



Preparing Alkyl Halides



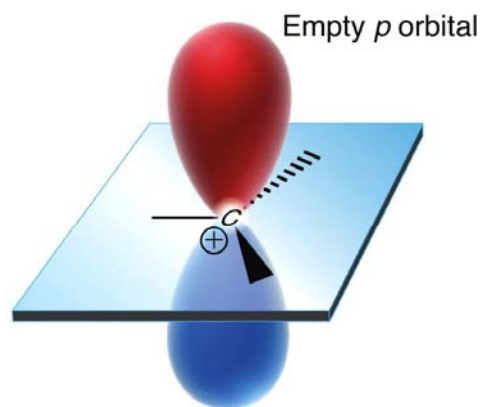
Generation of Radicals

Free radicals form when

Note the single-barbed or fishhook arrow used to show the electron movement.

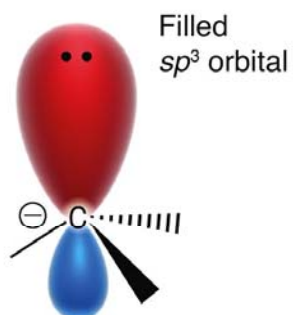
Free Radicals

Carbocation

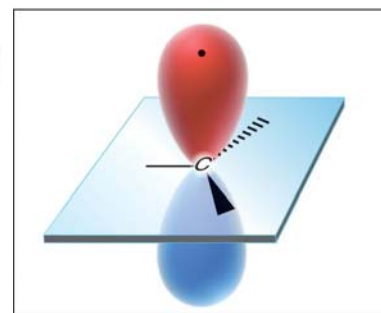


sp^2 hybridized
(trigonal planar)

Carbanion

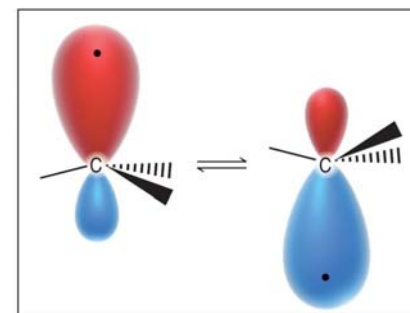


sp^3 hybridized
(trigonal pyramidal)



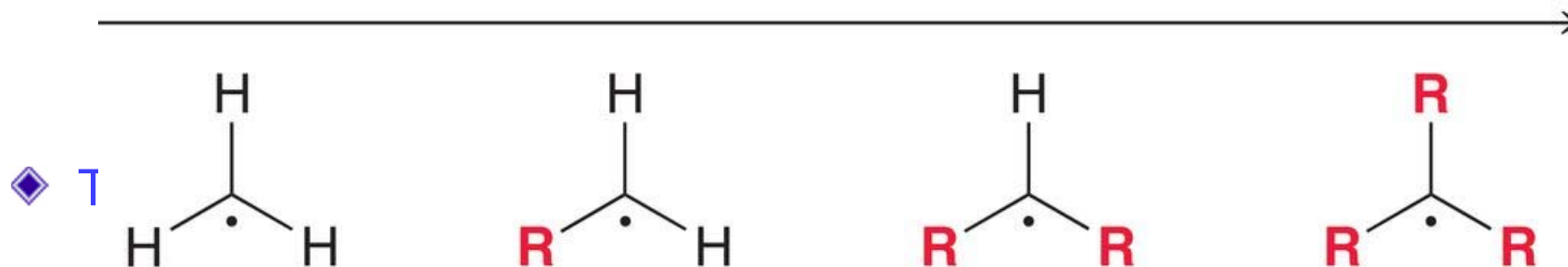
Trigonal planar

or



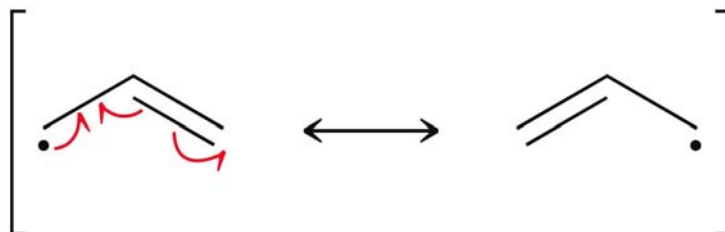
Shallow pyramid
(rapidly inverting)

Free Radical Stability



Free Radical Resonance

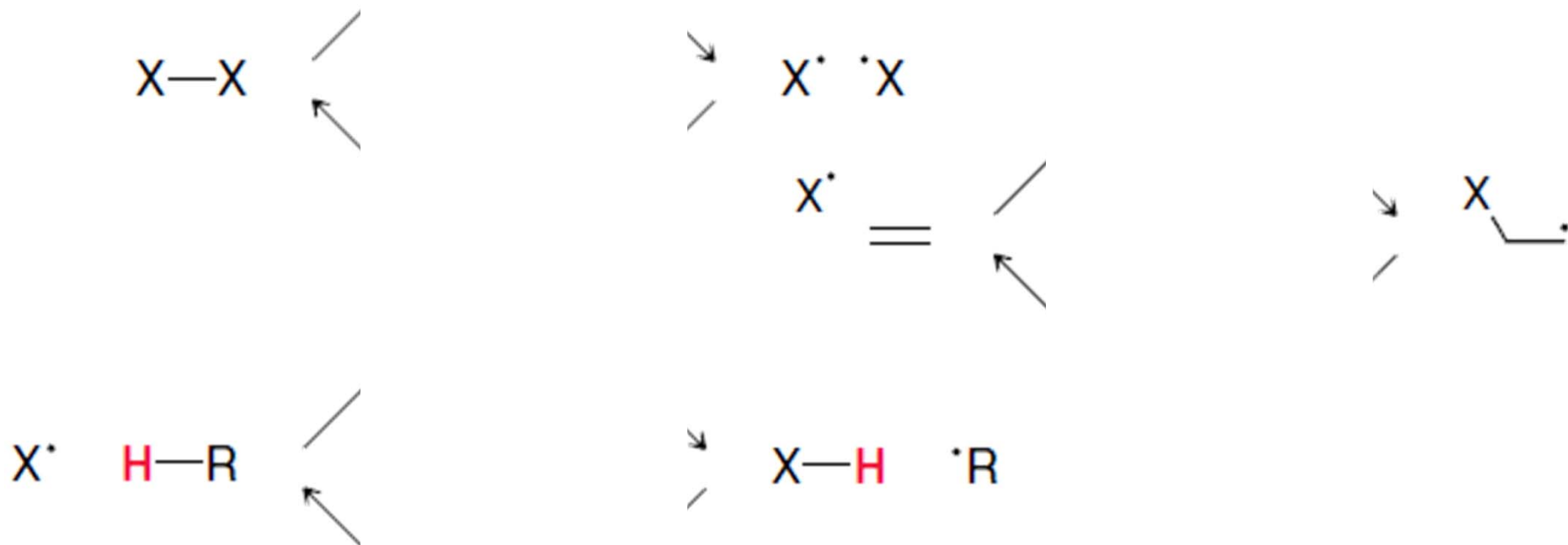
- ◆ Fishhook arrows are used to present possible resonance forms



Radical Electron Movement

Radical Electron Movement

- ◆ Note the reversibility of radical processes:



Addition of Radicals to Alkene

For Next Time....

Suggested Homework Problems Chapter 9

1,7,9,13,18,20,32-37, 41,44,52,57

Suggested Homework Problems Chapter 10

1, 2, 12, 16, 23,24, 33, 42