

Although some of the reactions that we have studied in class may seem complicated, they really boil down to three types of processes, summarized below. Each step involves the movement of 3 electrons

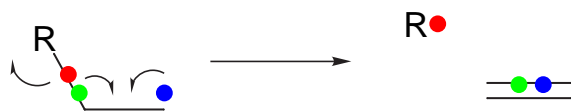
Atom Extraction



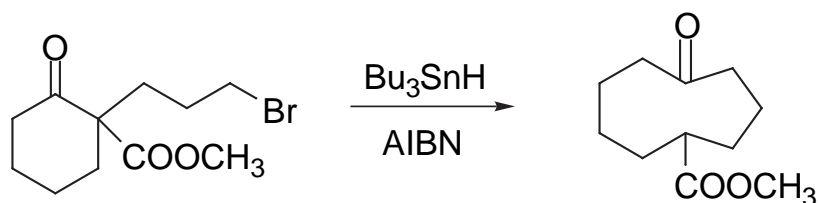
Multiple Bond Addition



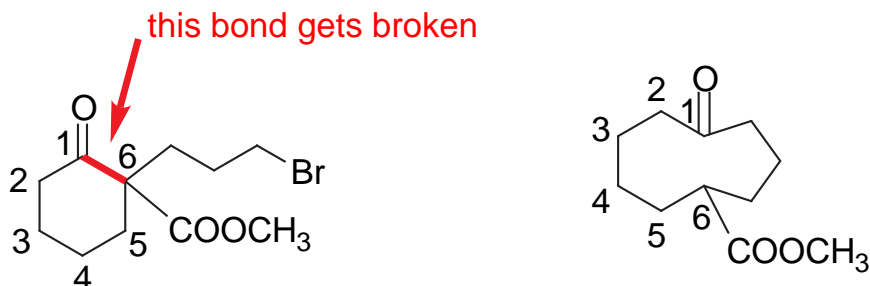
Fragmentation: the reverse of the above reaction



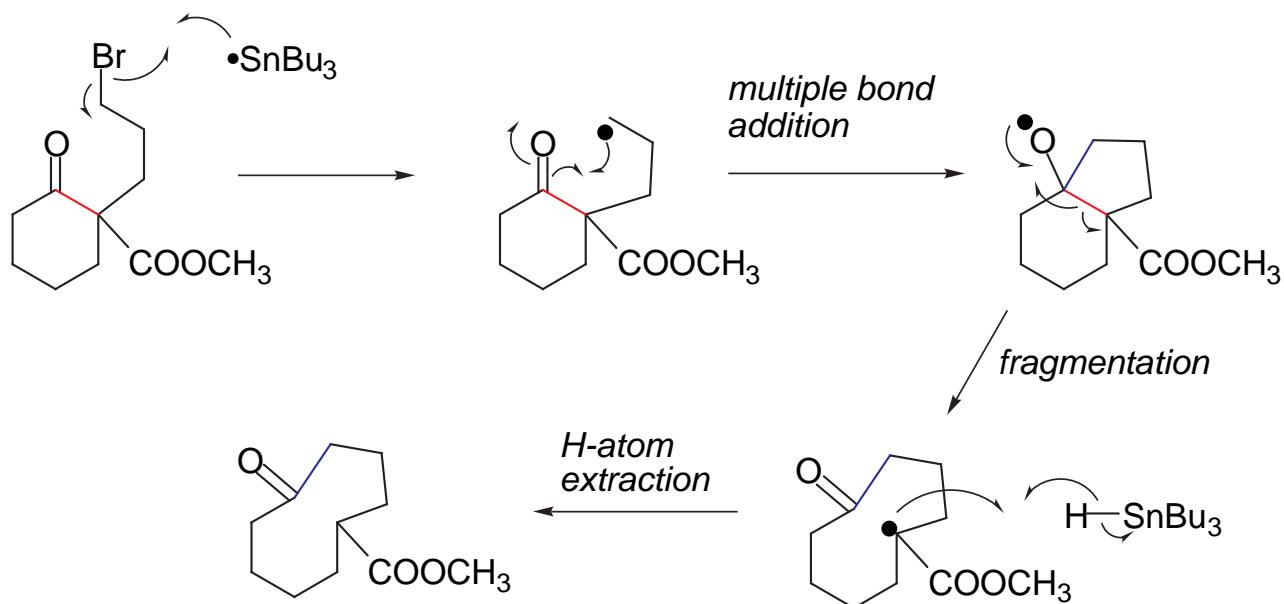
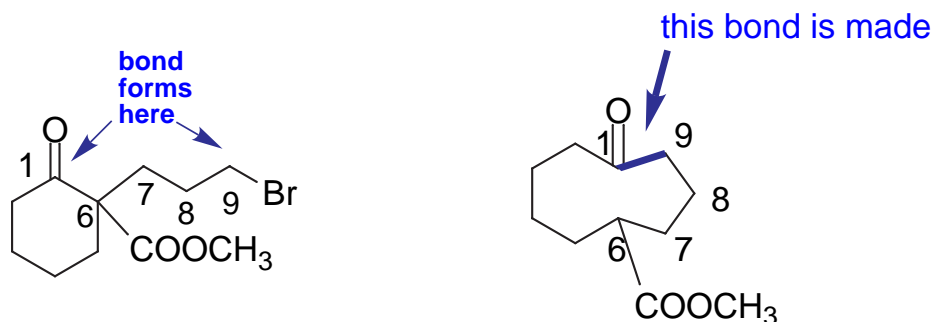
Note that each of the 'fishhook' arrows indicate the movement of 3 electrons.



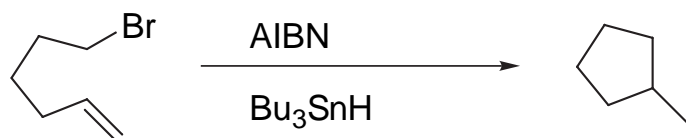
First thing: Map it out. We know that there are 6 carbons between $\text{C}=\text{O}$ and CO_2CH_3 in the starting material. Can we find a similar trend for the product? Yes. By mapping those carbons, we can realize that the C1-C6 bond gets broken



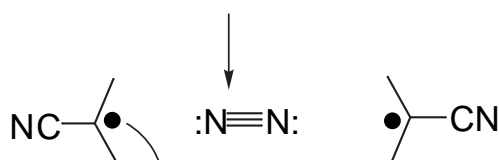
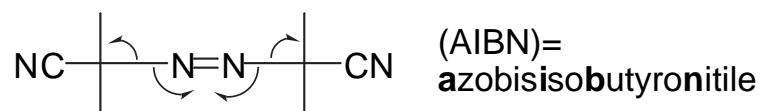
We have 3 carbons left. Plug them in and see if we can tell where the bond will form. We can see that it will be between carbons 1 and 9.



This example illustrates two of these processes:
atom abstraction and double bond addition (in
this case, an intramolecular version)



Initiation



AIBN is an initiator for
chain reaction in the
cyclization below

Propagation

