Day 6: Elementary Reactions III

TODAY'S TOPICS

- 1,1-migratory insertion
- α-elimination
- 1,2-migratory insertion
- β-elimination

CHEMIST OF THE DAY

name?
institution
known for?

QUOTE OF THE DAY

"For us, there is only the trying. The rest is not our business."

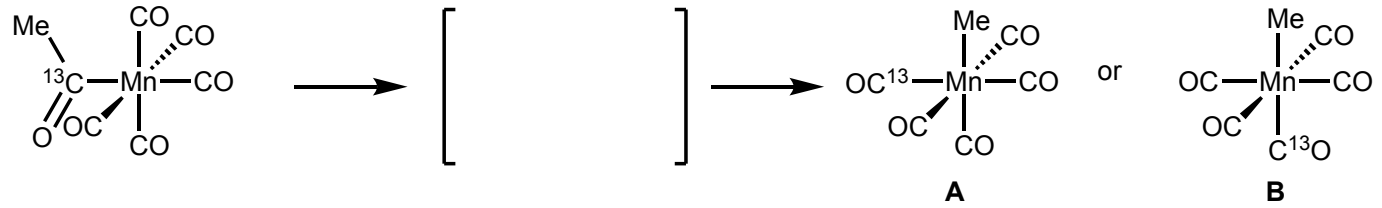
- T.S. Eliot

READING

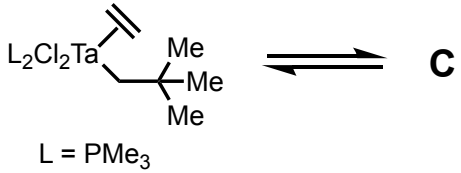
Hartwig: Ch. 3.2, 8–9, 19.4
Crabtree: Ch. 7

PROBLEMS OF THE DAY

#1 Consider the following manganese complex. **Propose the intermediate and product (A or B).**

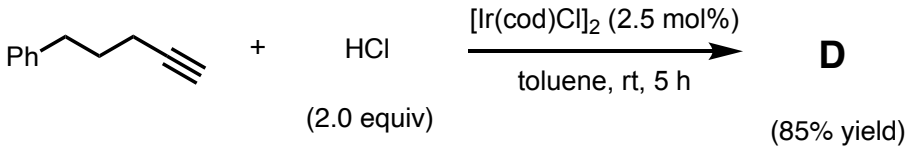


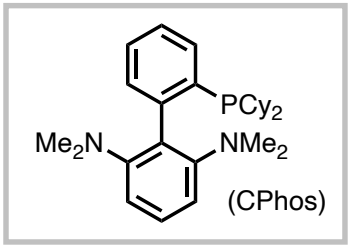
#2 In solution in C_6D_6, the following tantalum complex is in equilibrium with a tautomeric form, **C**. **Predict the structure of C and propose a mechanism to form it.**



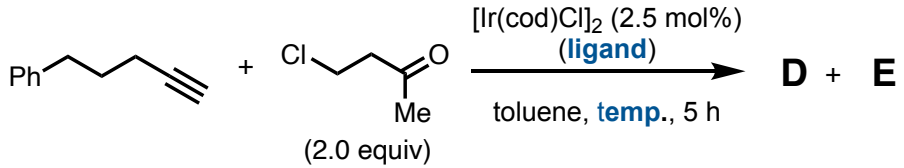
#3 Consider the catalytic transformations below.

A. Predict product D and propose one or more plausible mechanisms.





B. The same product can also be efficiently accessed using the alkyl chloride below in lieu of HCl, but in this case higher temperature and addition of a phosphine ligand are required for high yield. **Provide the structure of E and explain the role of ligand and elevated temperature.**



temp.	ligand	% yield (D)
rt	(none)	0%
80 °C	(none)	20%
rt	CPhos	0%
80 °C	CPhos	80%