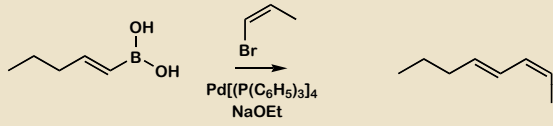


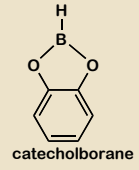
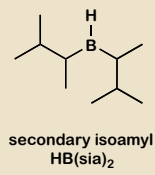
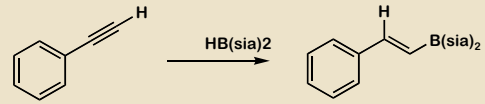
Suzuki Reaction

vinyl or aryl halide or triflate

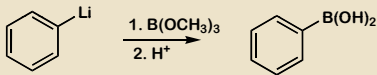
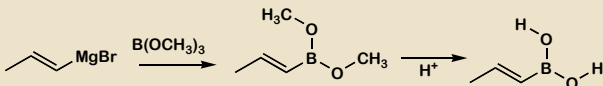
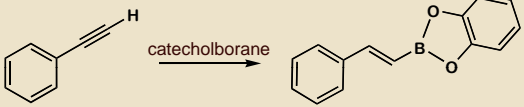


vinyl or aryl boronic acid or some other boron vinyl or aryl compound

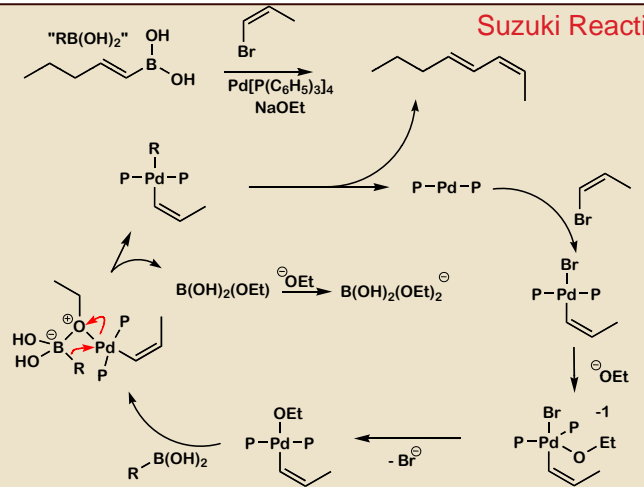
Hydroboration of alkynes



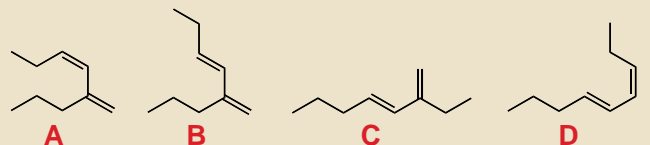
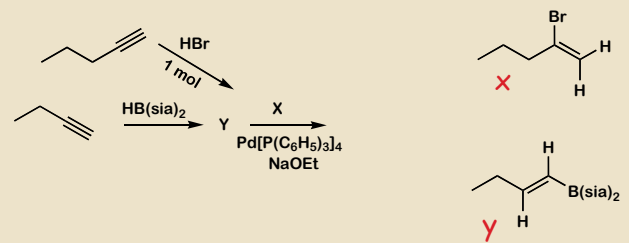
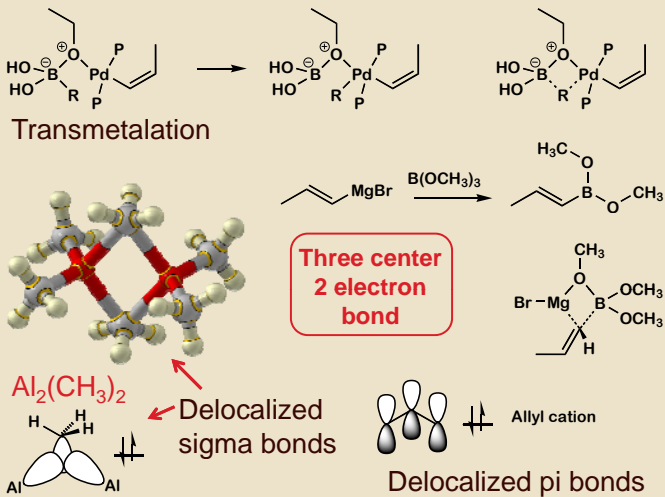
Hydroboration of alkynes



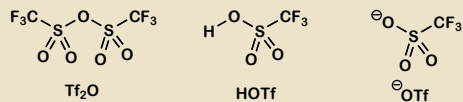
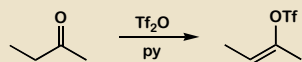
Suzuki Reaction



Transmetalation

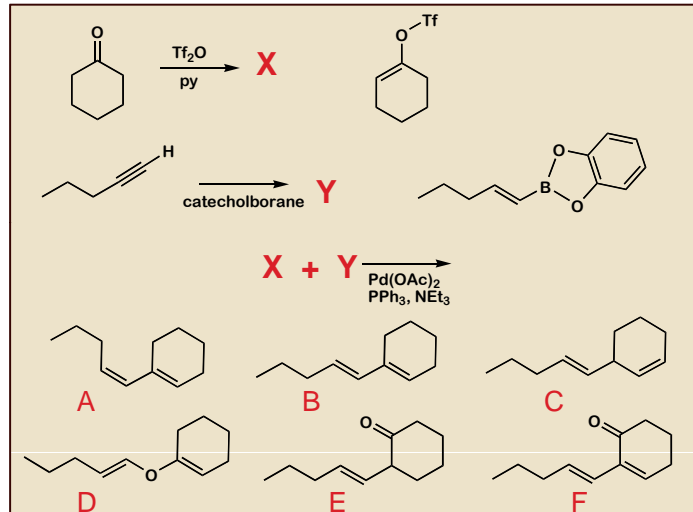


Vinyl Triflates



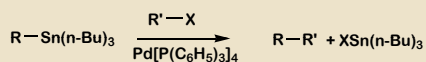
Note: the triflate group is not a protecting group like TMS.

It is an activating group! The opposite.

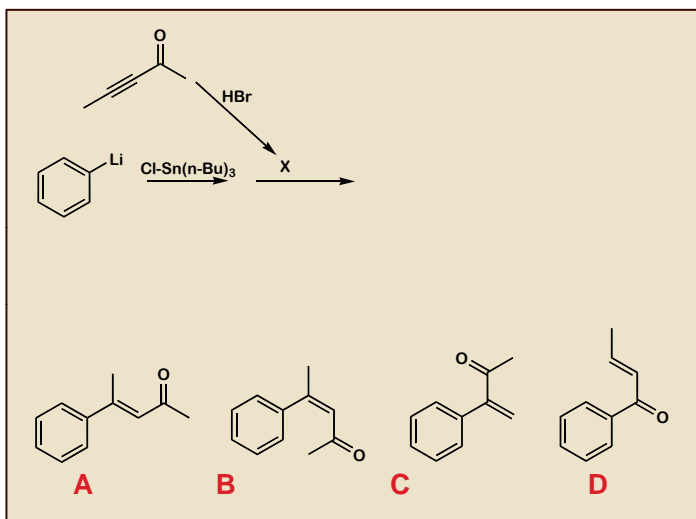
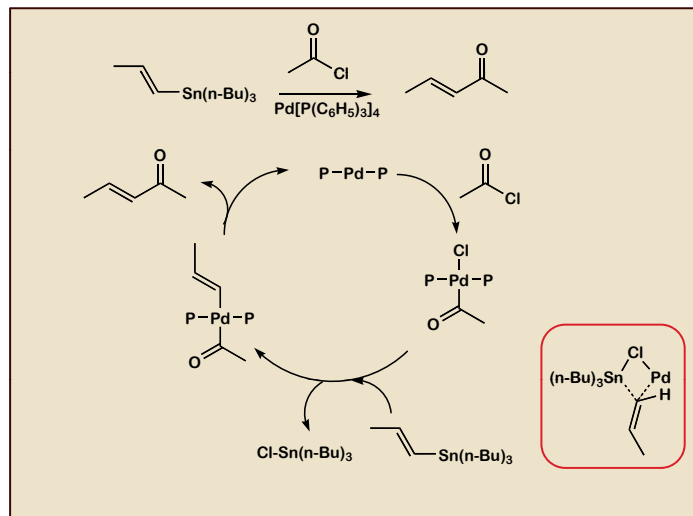
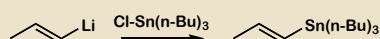
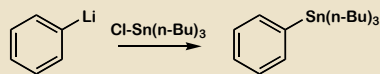


Stille Reaction

Alkynyl vinyl or aryl halides or triflate work best, but most any group without a beta Hydrogen will work

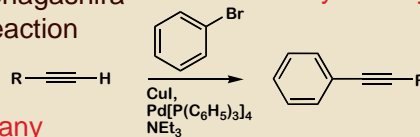


vinyl or aryl tin compound

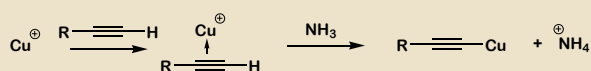


Sonagashira Reaction

a aryl or vinyl halide

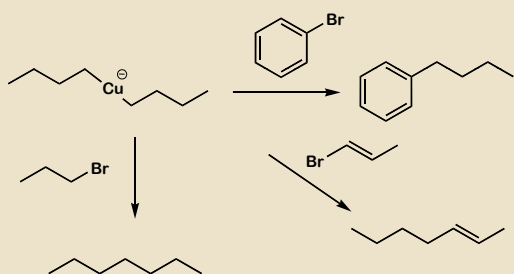
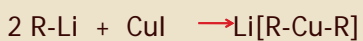


any terminal alkyne

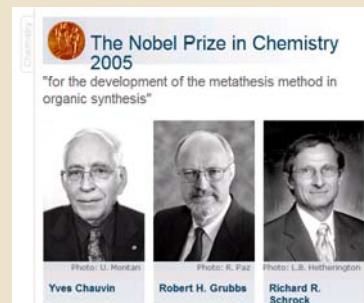
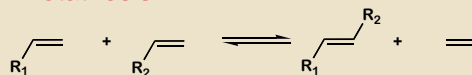


First step is the formation of copper acetylide

Organo Copper Chemistry Lithium dialkylcuprates.

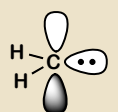


Olefin Metathesis



http://nobelprize.org/nobel_prizes/chemistry/laureates/2005/

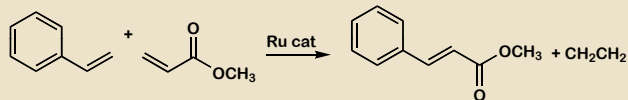
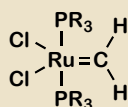
Carbene ligand



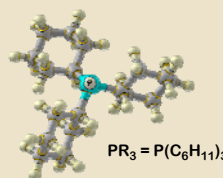
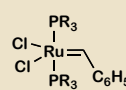
$2 e^-$
 σ bond



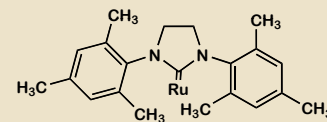
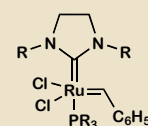
$2 e^-$
 π bond



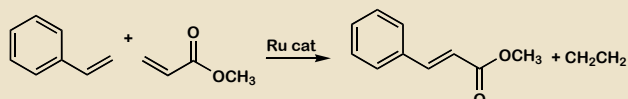
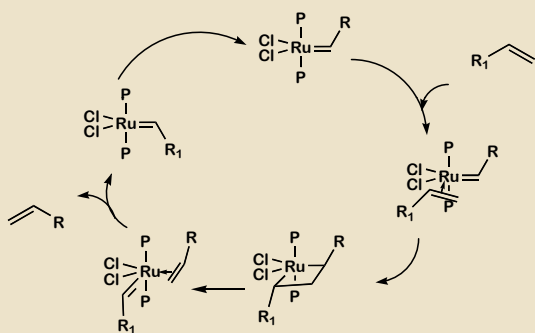
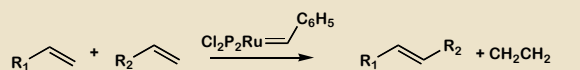
Grubb's 1st Generation Catalyst



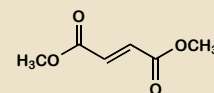
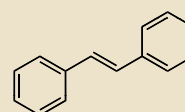
Grubb's 2nd Generation Catalyst



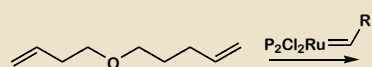
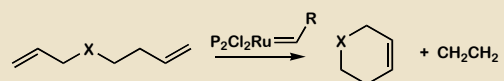
26	27	28	29
Fe	Co	Ni	Cu
Iron	Cobalt	Nickel	Copper
55.845	58.933	58.693	63.546
44	45	46	47
Ru	Rh	Pd	Ag
Ruthenium	Rhodium	Palladium	Silver
101.07	102.91	106.42	107.868
76	77	78	79
Os	Ir	Pt	Au
Osmium	Iridium	Platinum	Gold
190.23	192.22	195.08	196.967



95% E / 5% Z



Ring closing metathesis



Predict the product



A



B



C



D



E



F