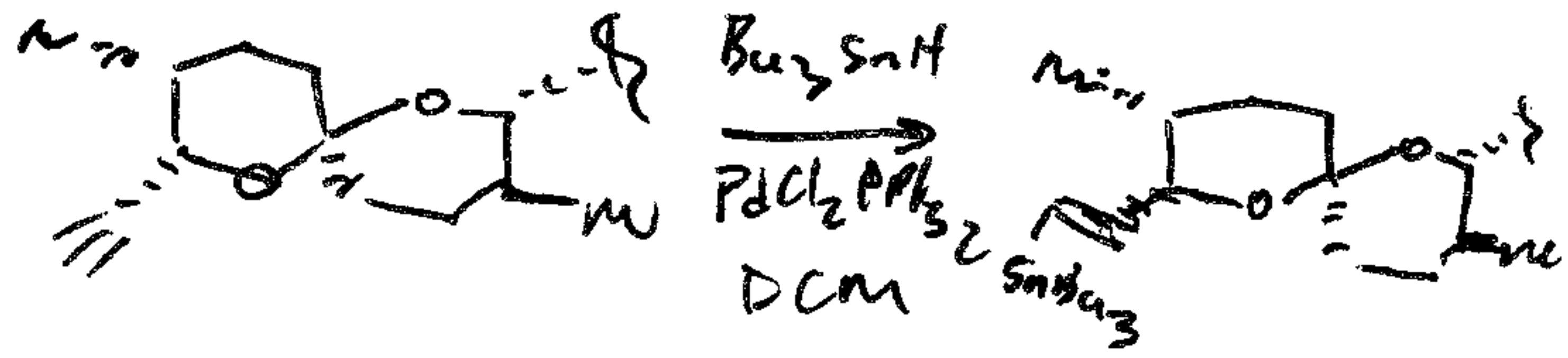
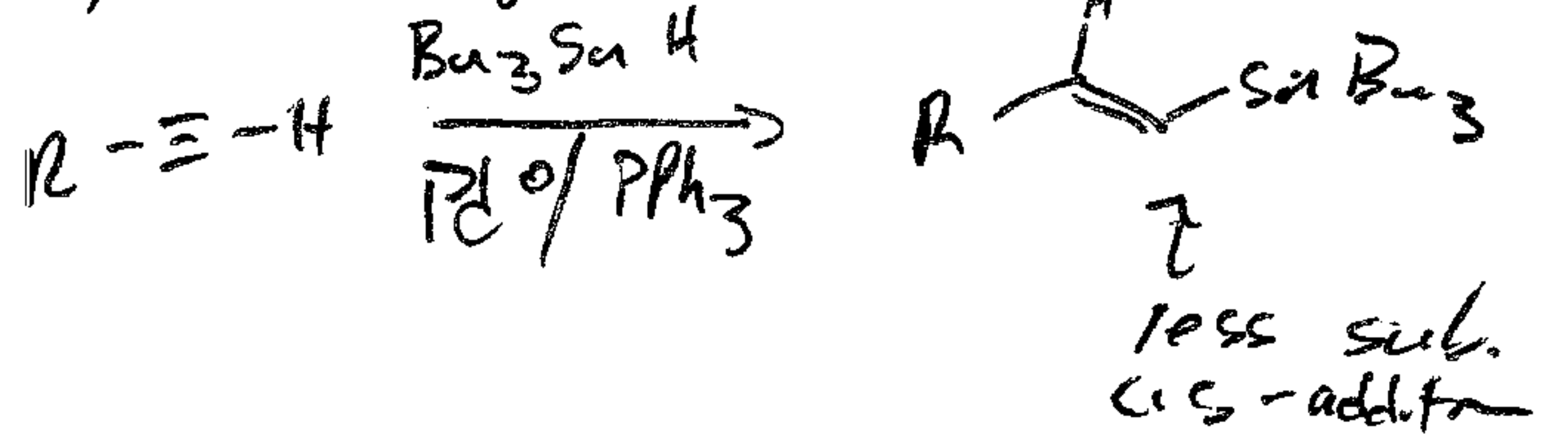


Today:

- Finish Epoxide Chem
- more M-H chemistry
- Practice w/ Retrosynthesis

more M-H additions

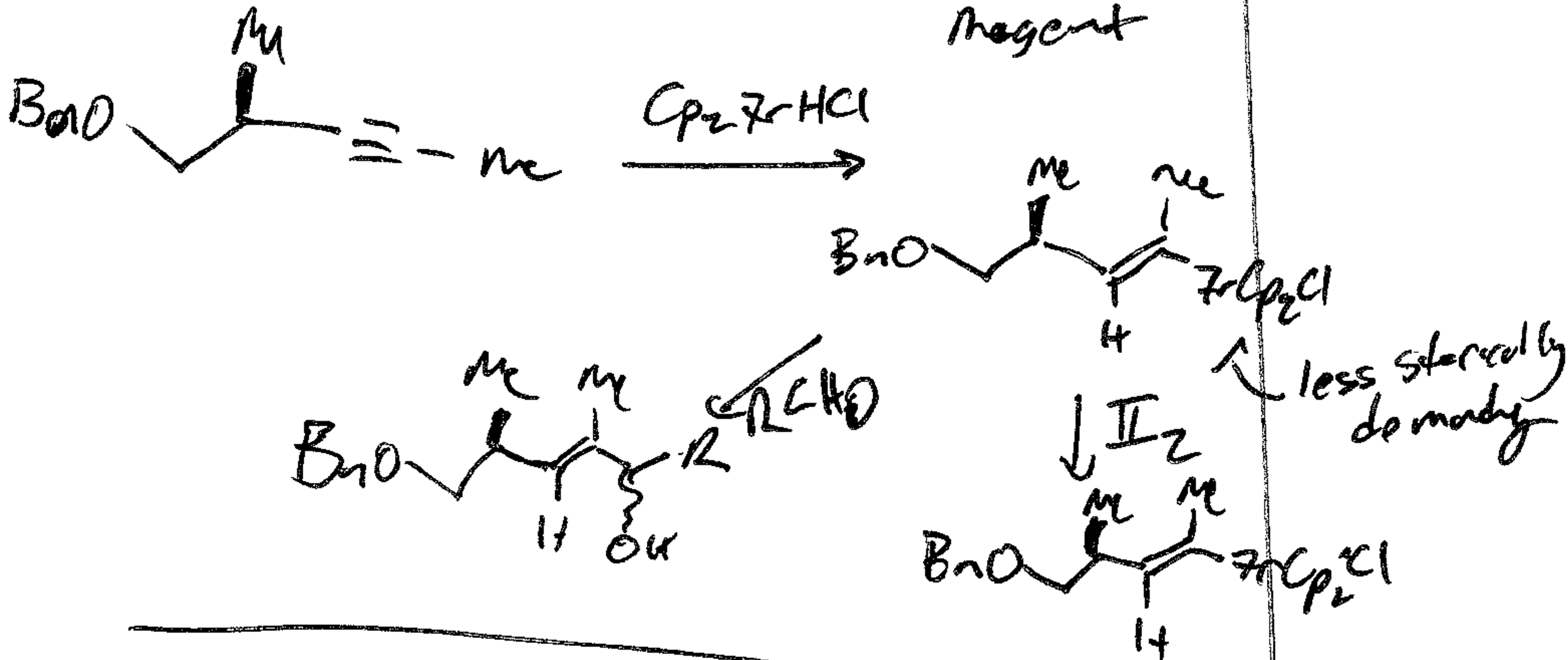
Hydrostannylation



Hegudus ch. 3

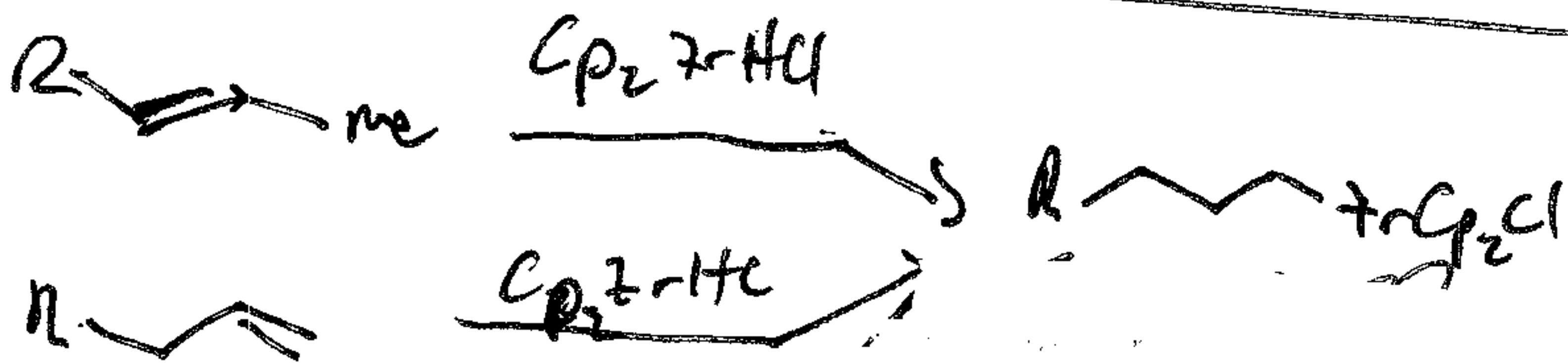
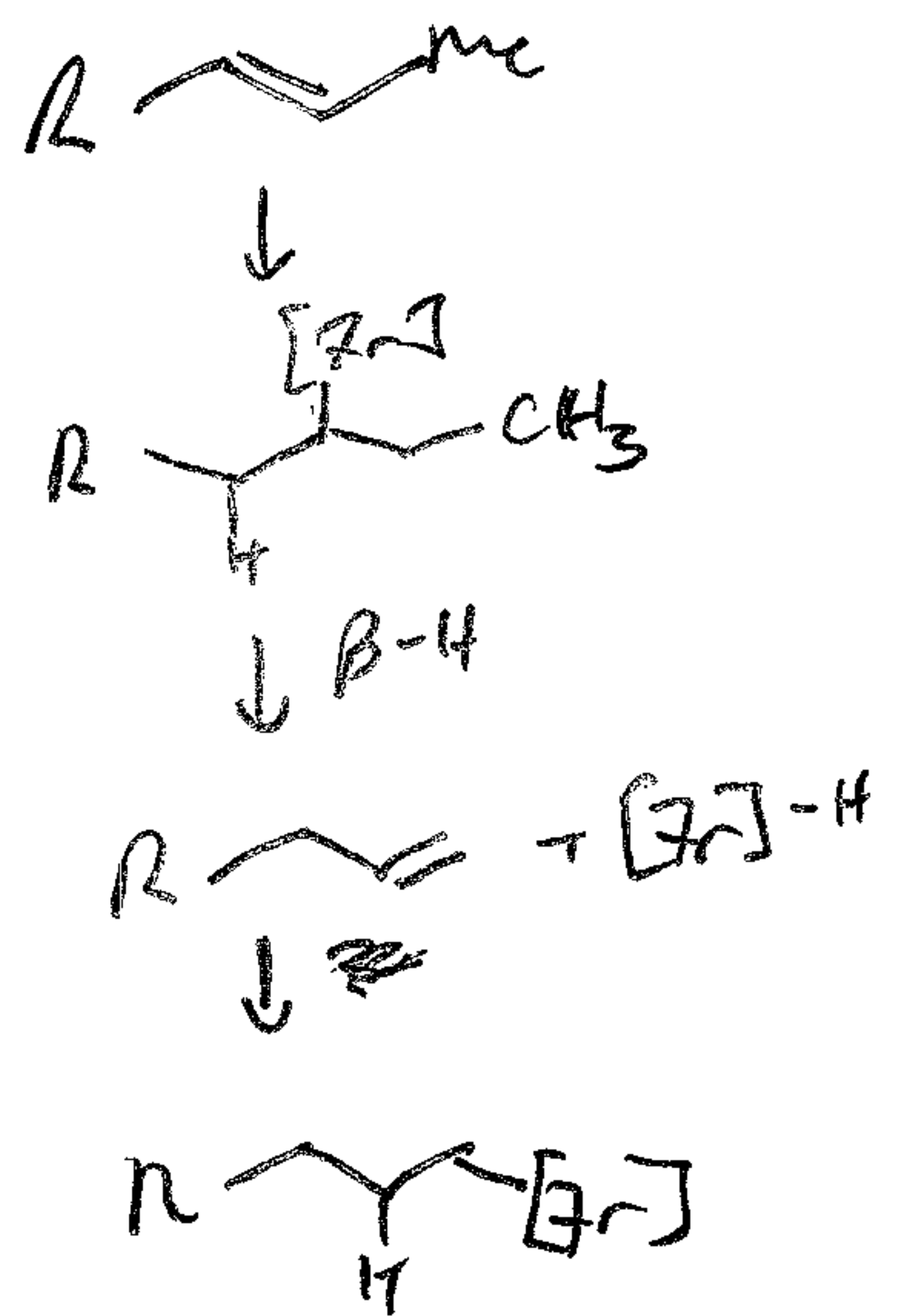
Hydrozincuration

$Cp_2ZrHCl$   
Schwartz's reagent

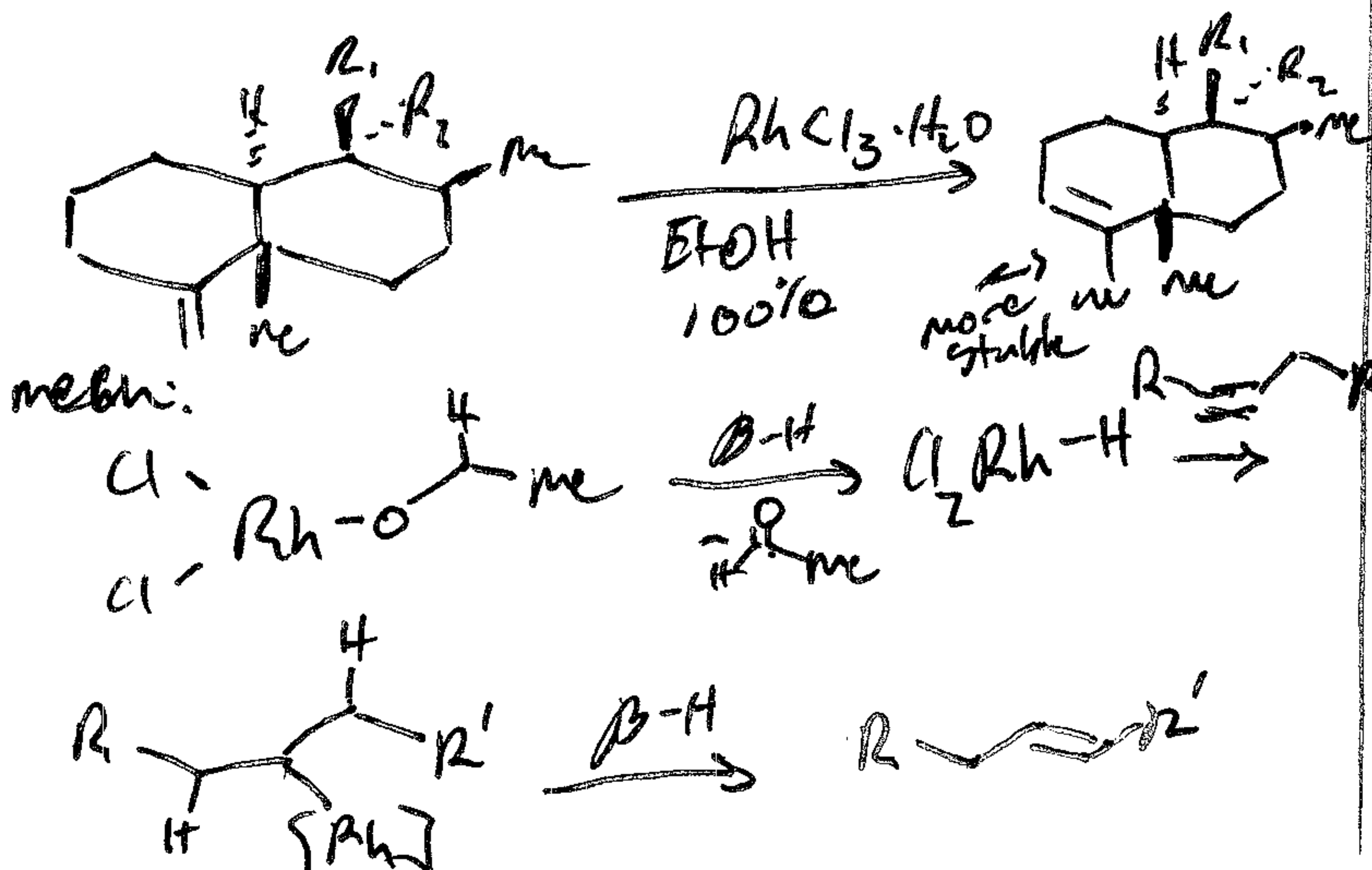


mech w/ Alkenes

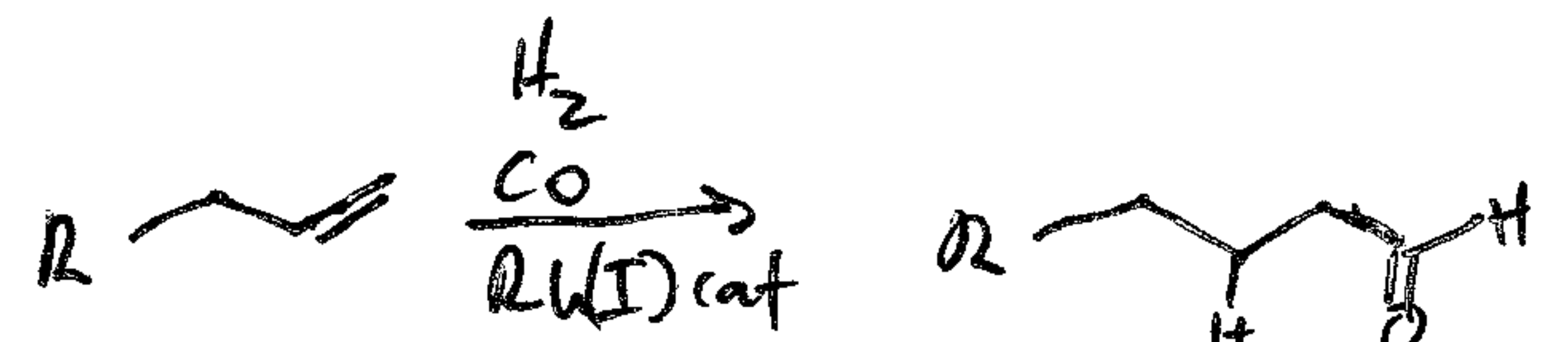
mech



Alkene walking (Also w/ Pd-H, Ir-H, Ru-H)



Hydroformylation - Hegudus ch 5



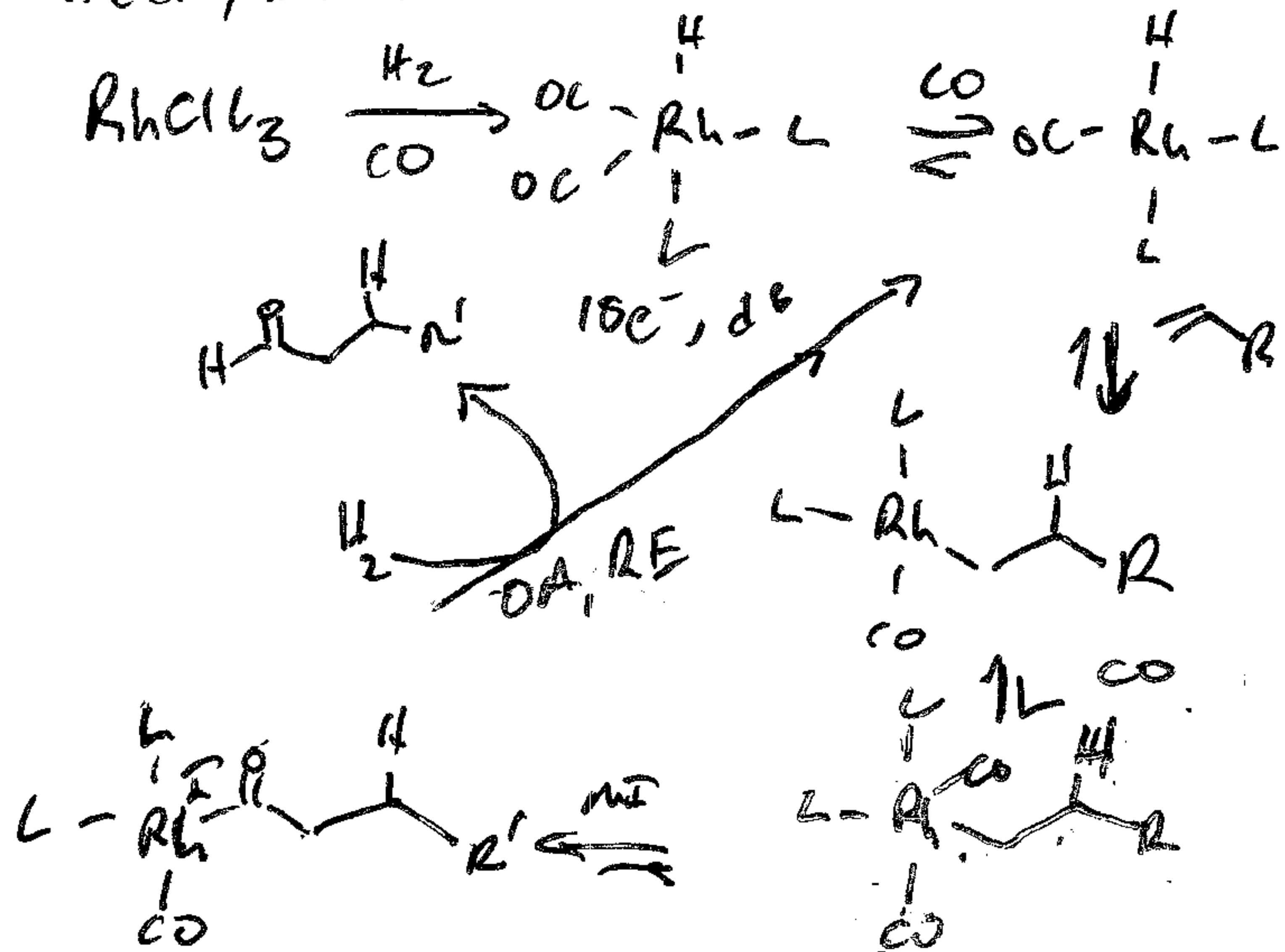
typical  
Rh(I) cat  
 $RhCl(PPh_3)_3$   
or  
 $Rh(acac)(CO)_2$

Review:  
Synthesis, 2001, 1

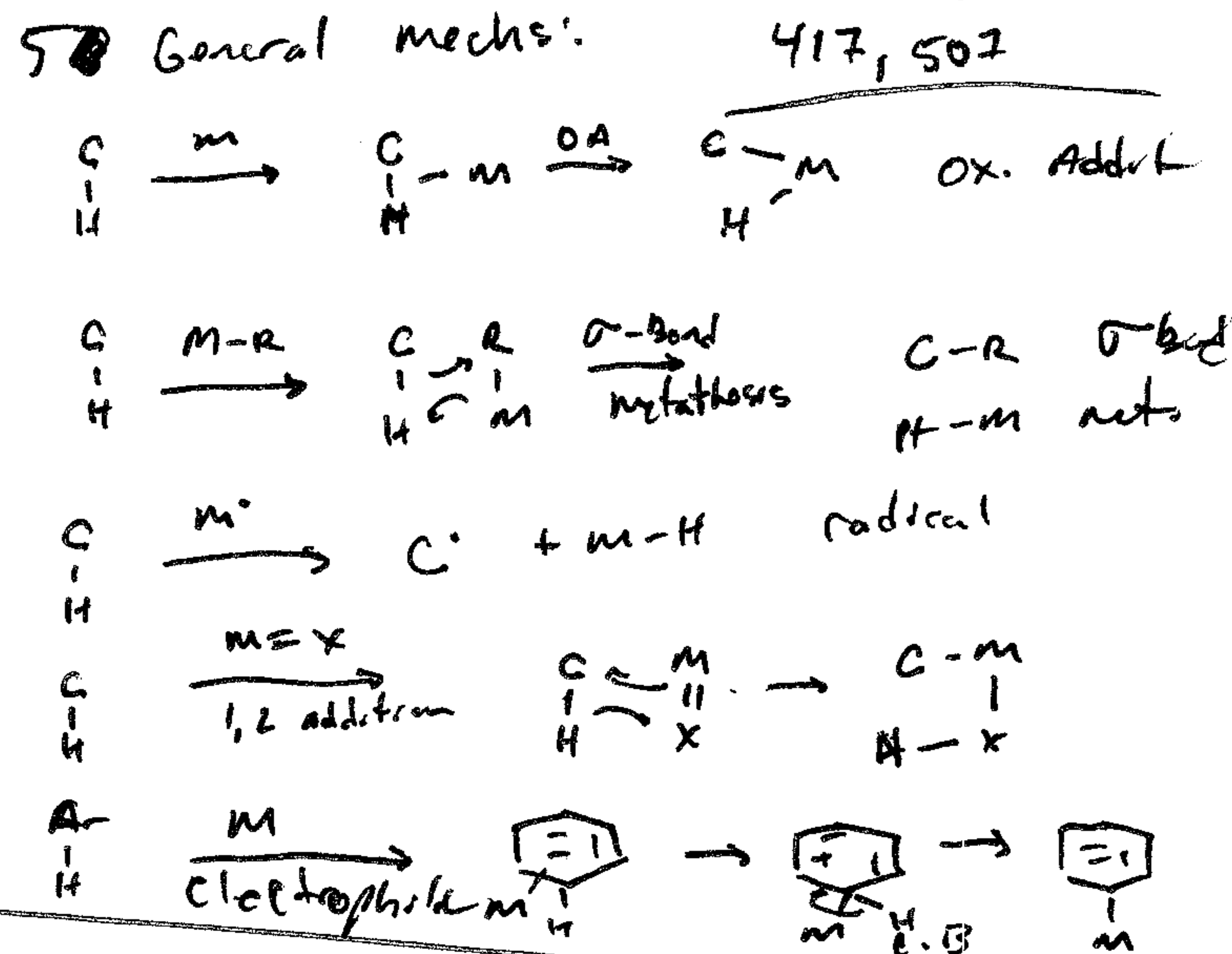
Industrially  
v. Important.

Asy. Variants known.  
Reaction chem is complex

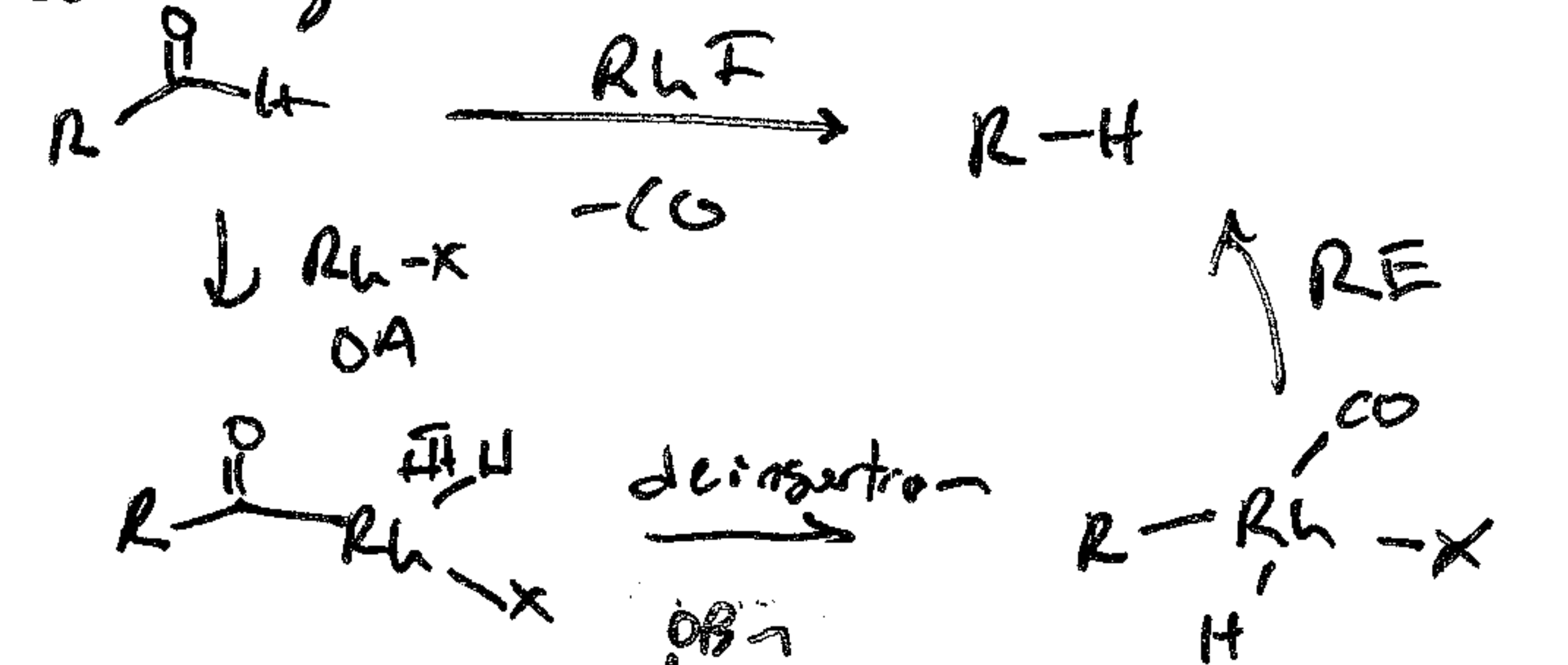
Hedc/Breslow mech:



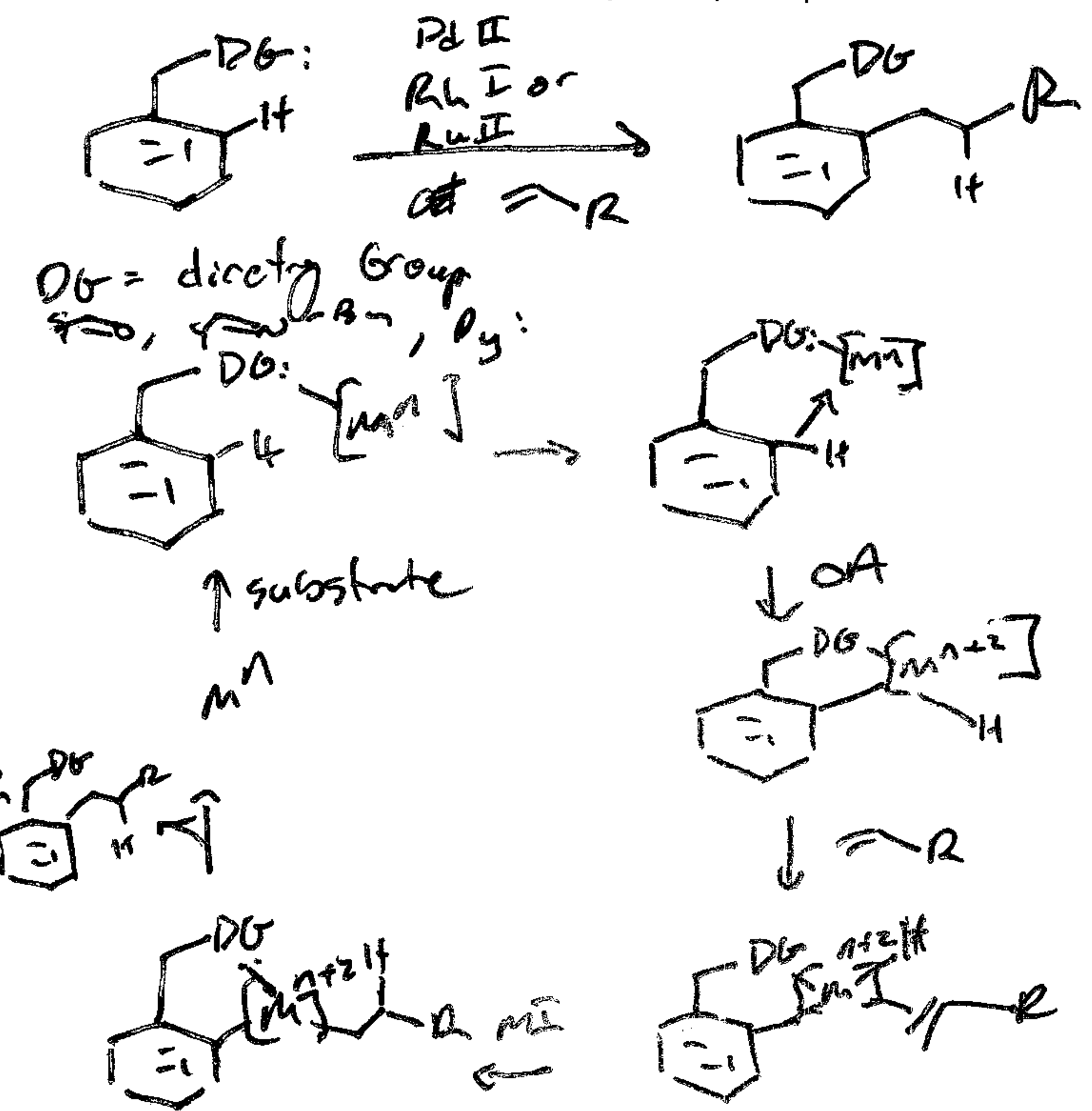
C-H Activation Bercaw Nature, 2002 417, 507



Decarbonylation



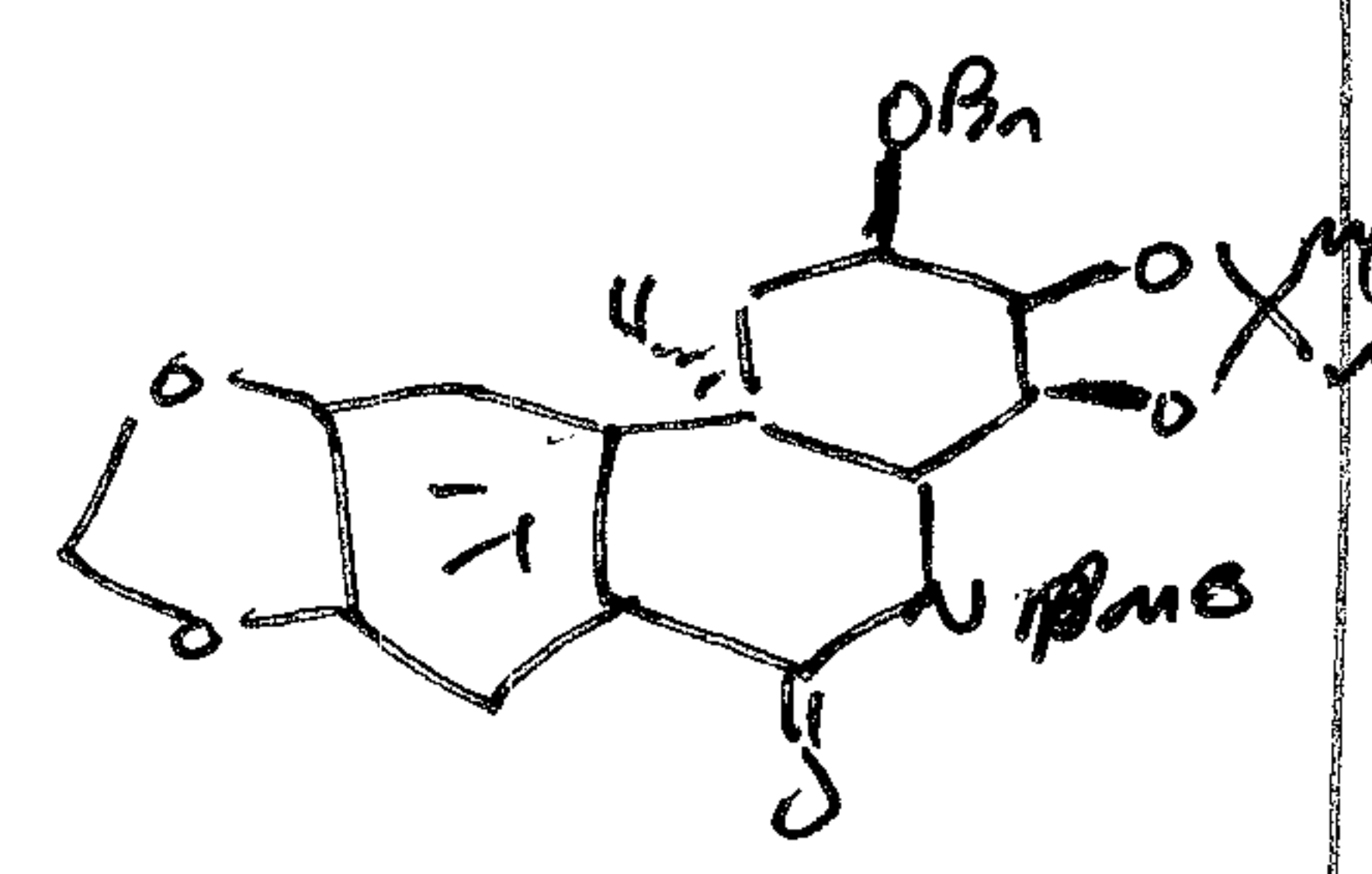
Ortho-Directed C-H activation



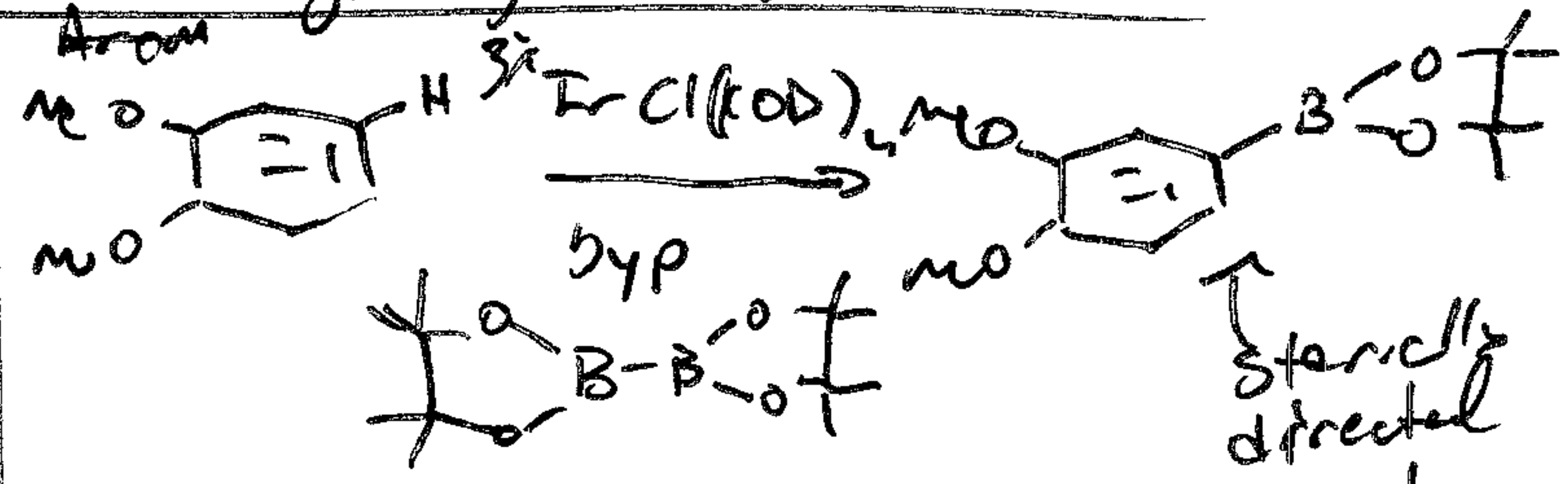
Bond Strength

CH <sub>3</sub> -H	104
Et-H	98
Ph-CH <sub>2</sub> -H	88
Me-C(=O)-H	88

↑ weak bond

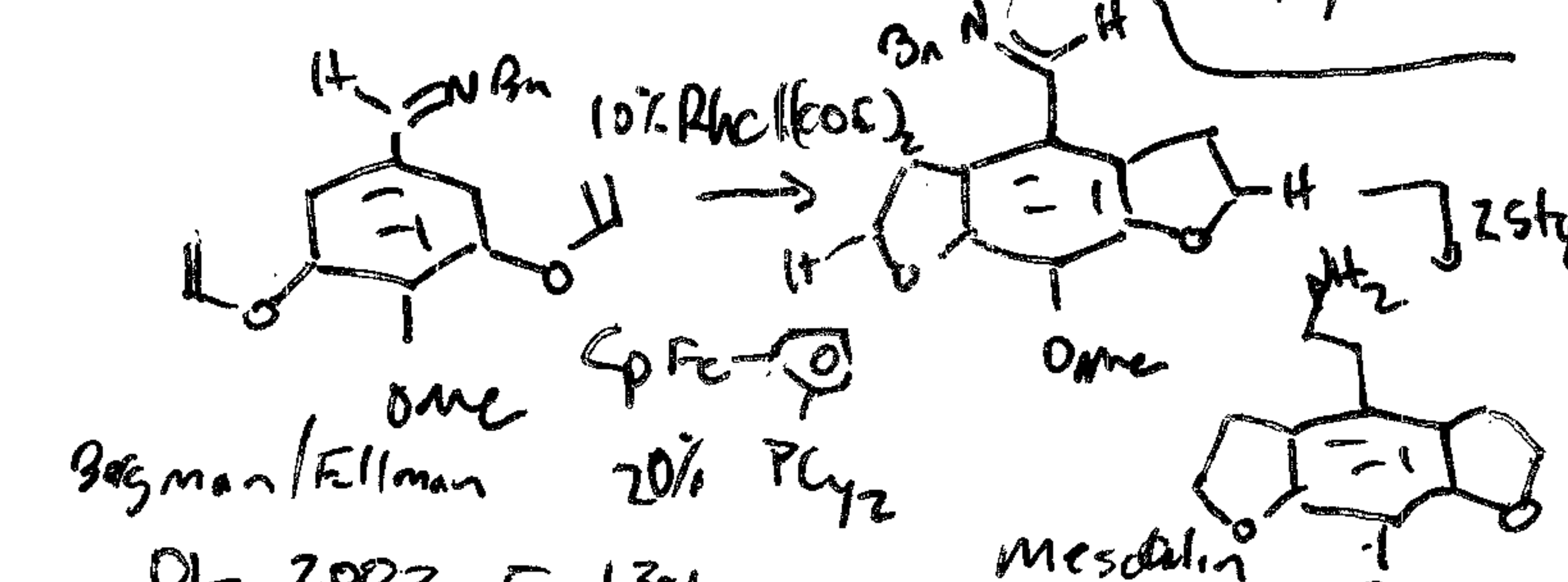
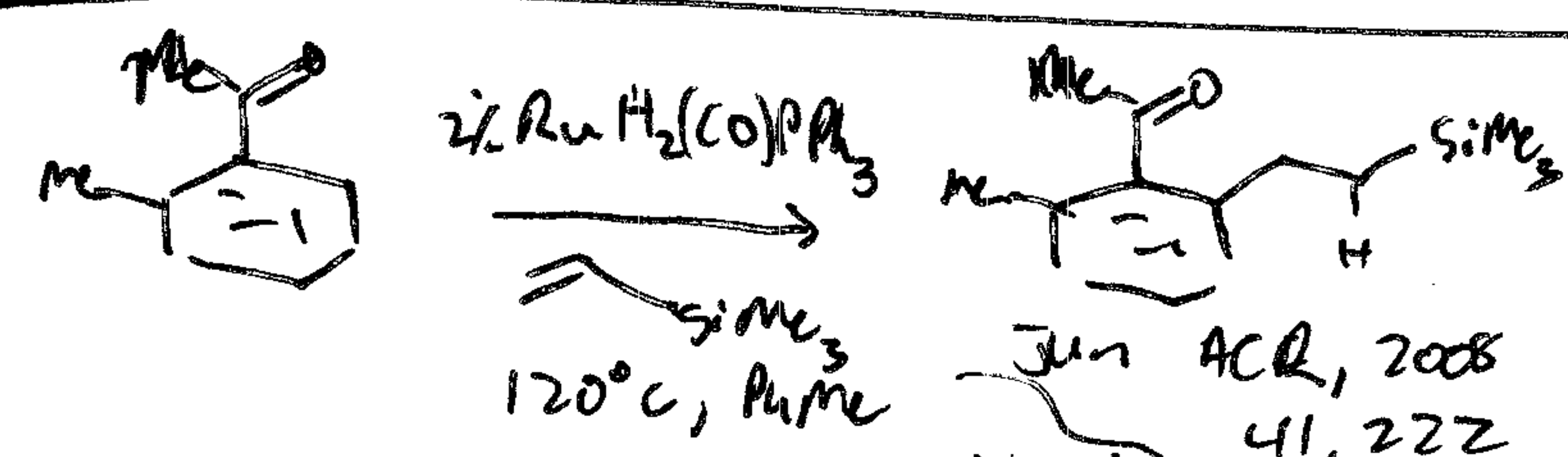


Direct Aryl Borylation

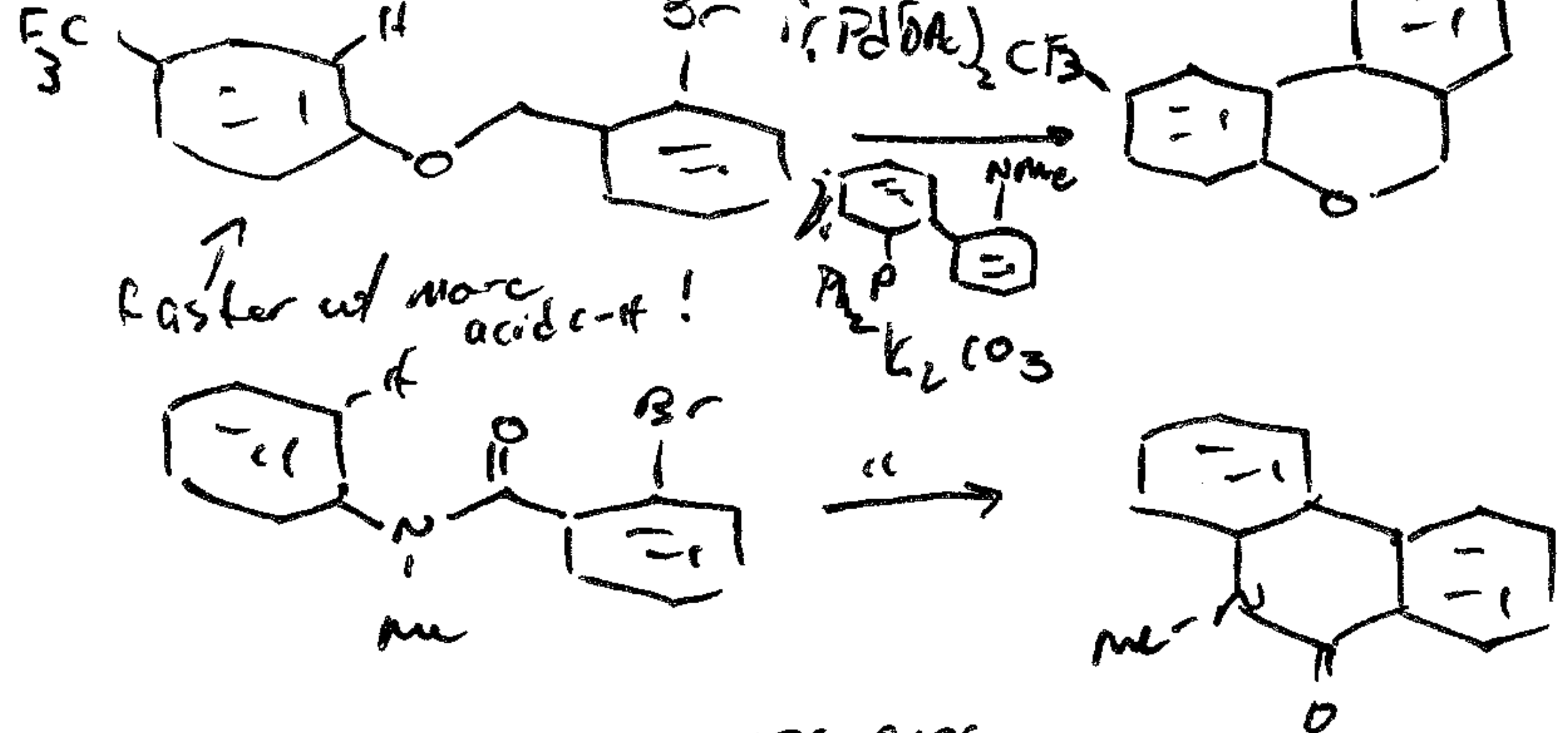


Smith Science, 2002, 265, 305  
 Ishiyama, Migaura, Hartwig  
 JACS, 2002, 124, 390

not on exams!

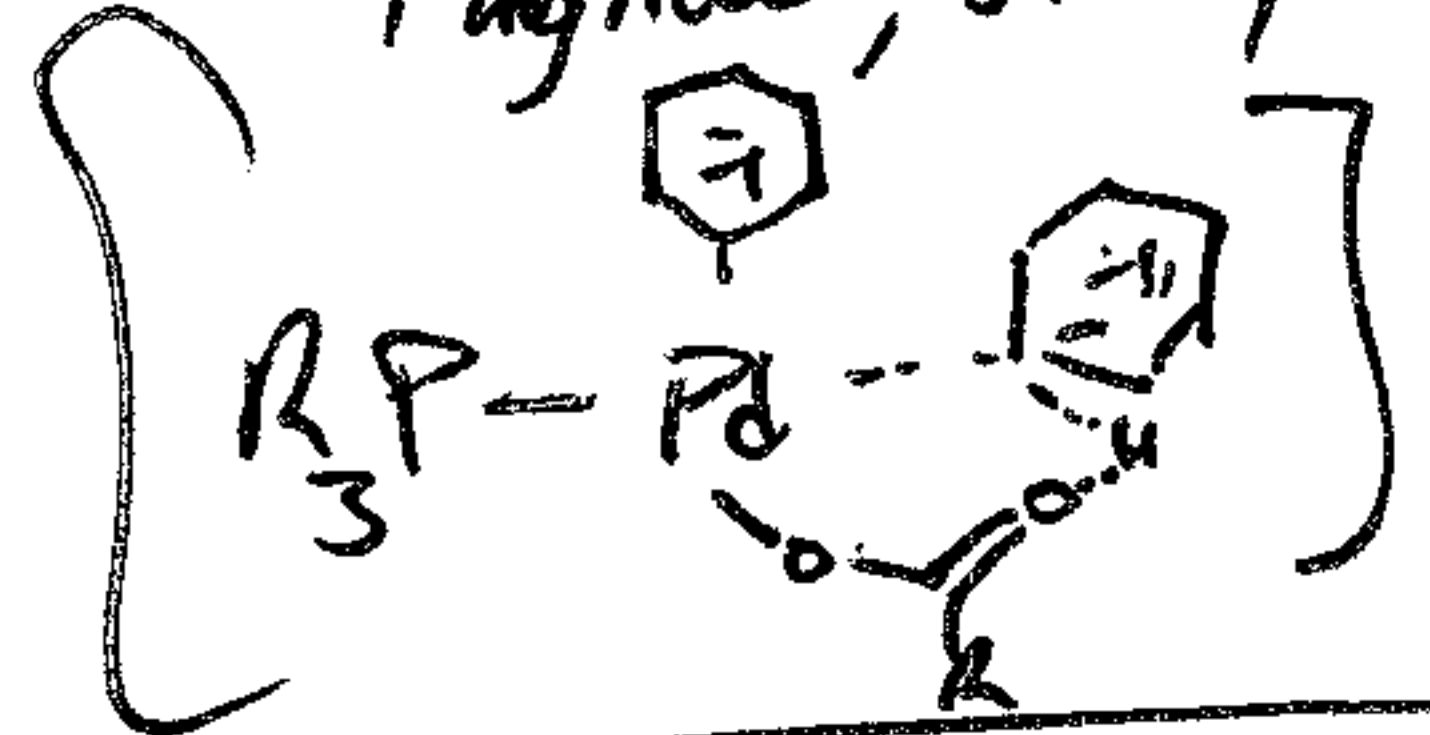


Direct Biaryl Synthesis



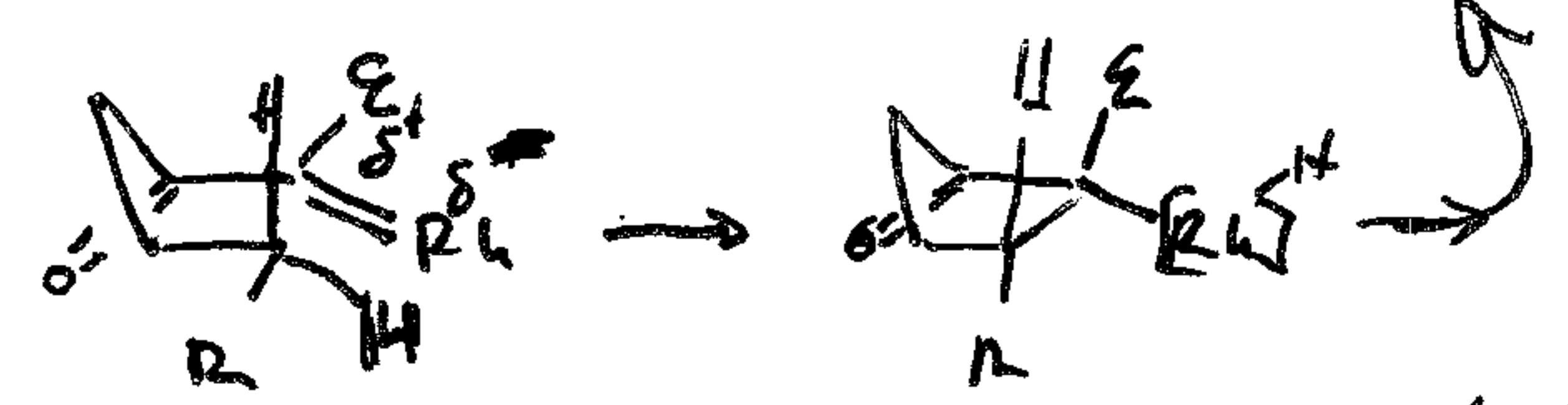
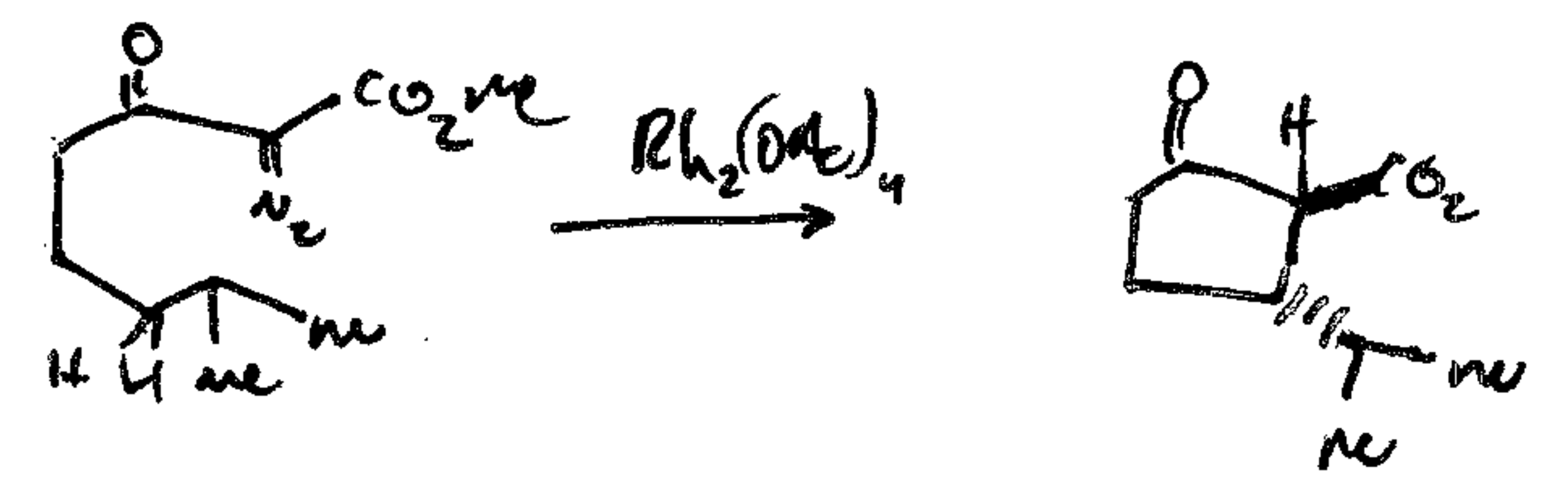
Raster w/ more acids!

Fagnou, JACS, 2004, 126, 9186

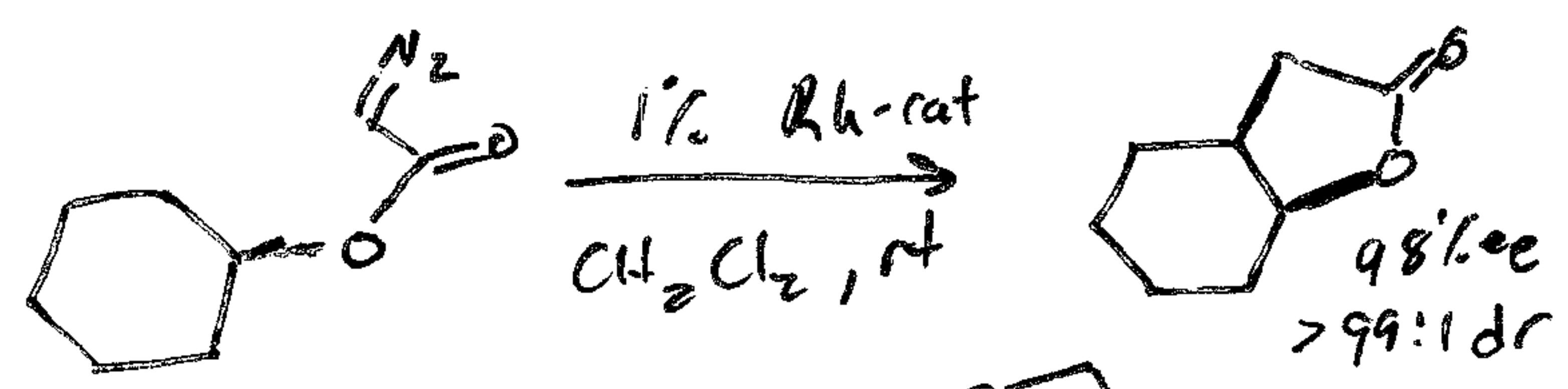


concerted deprotonation  
 JACS, 2006, 128, 16496  
 Not on exam!

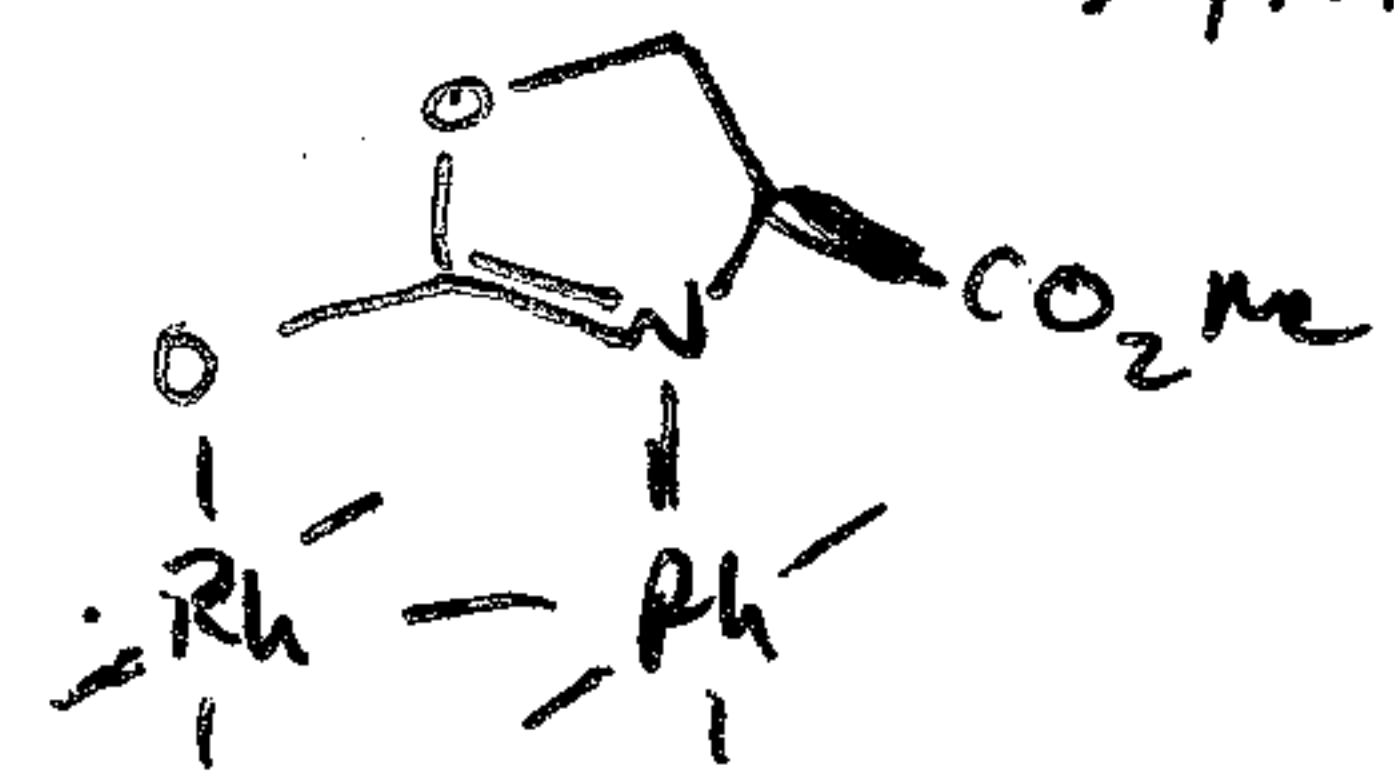
Rh - Carbene C-H insertion



C=Rh II to C-H  
 5-member rings preferred.  
 TABER, JOC, 1982, 47, 4808



Rh-cat =

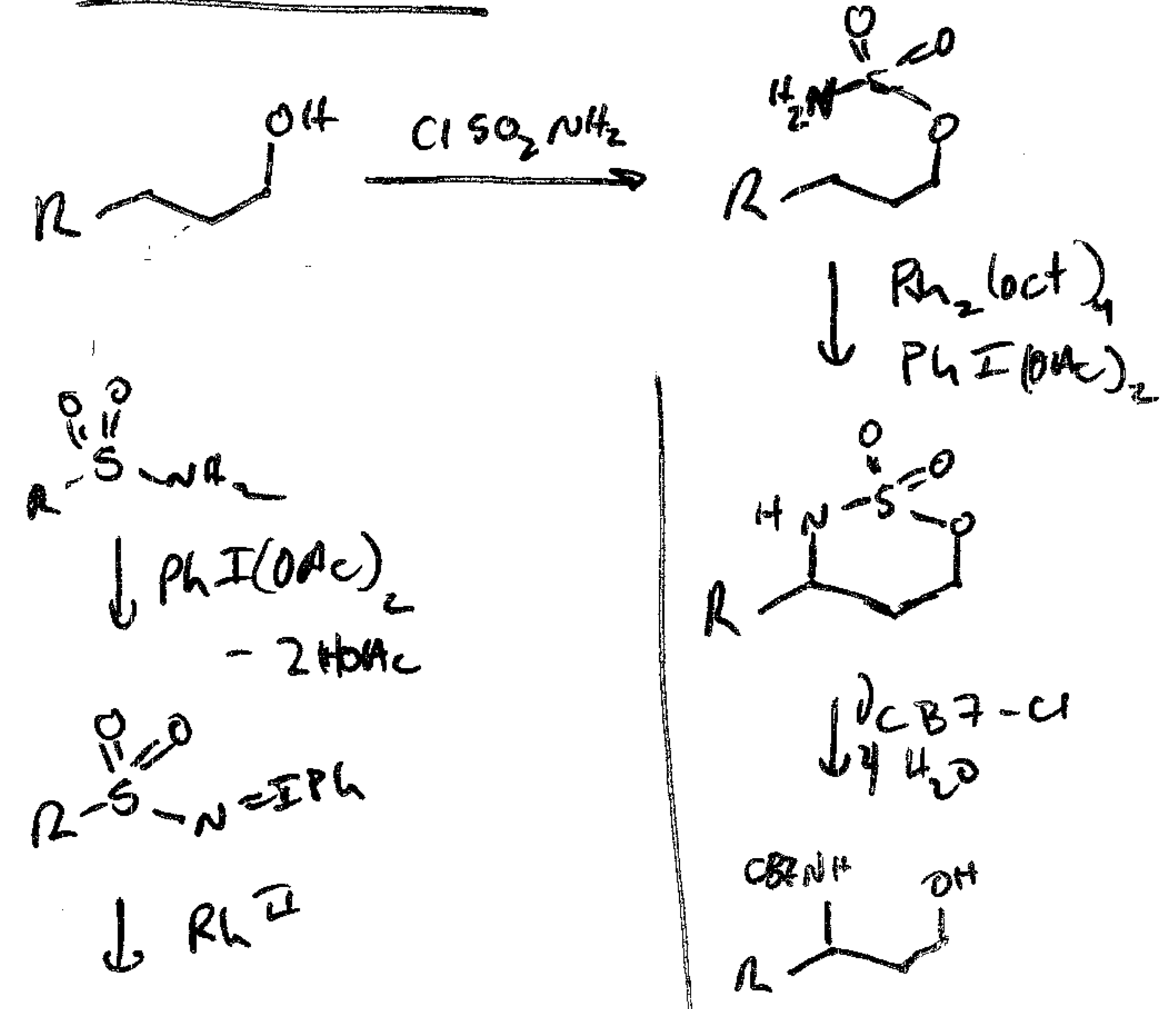


Doyle JACS, 1996, 118, 8837

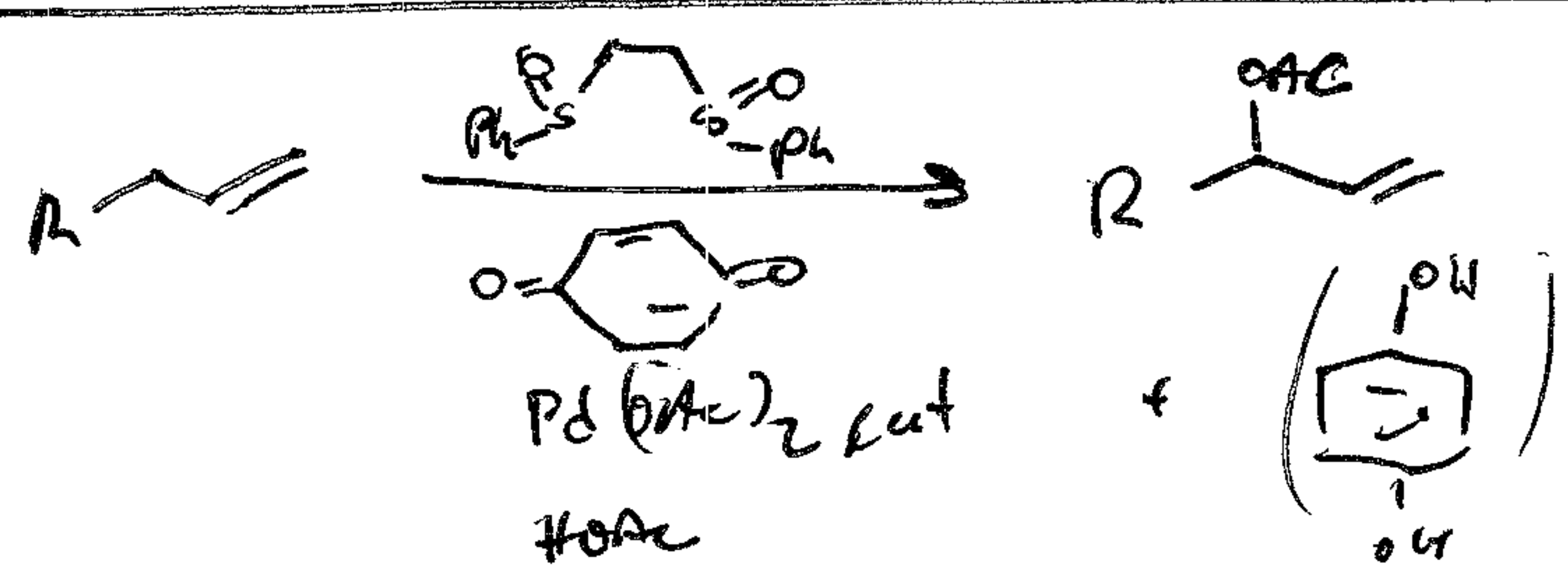
Okay for exam

Not on exam

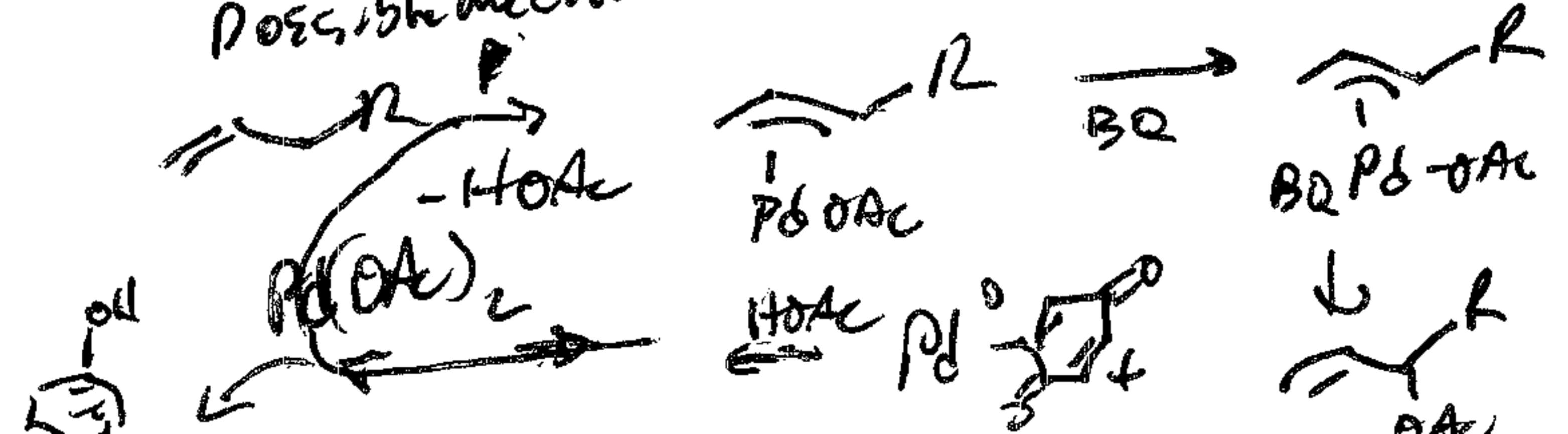
Dubois Chemistry



JACS, 2001, 123, 6935  
 JACS 2002, 124, 13672



White JACS, 2005, 127, 6470  
 Possible mech:



Stanford JACS, 2004, 126, 2300

