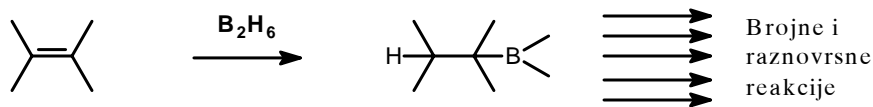
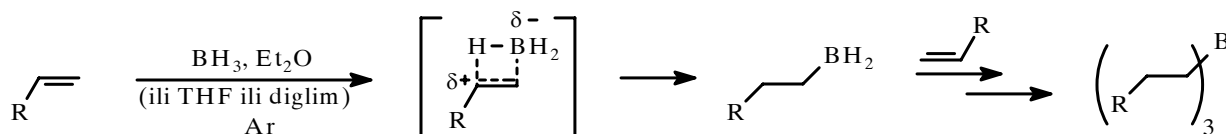


STVARANJE VEZE C-C POMOĆU ORGANOBORANA

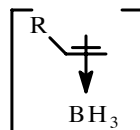


* Hidroborovanje alkena i reakcije alkil-borana

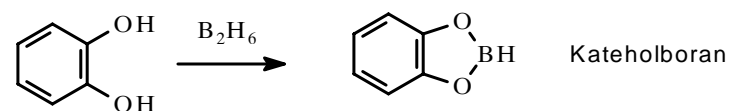
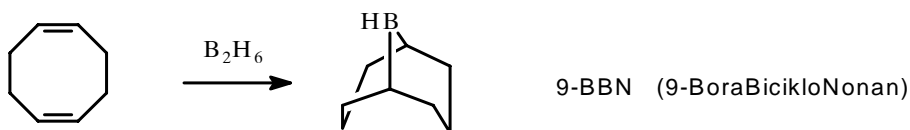
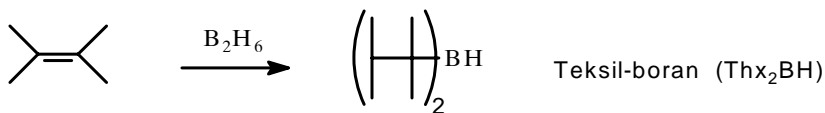
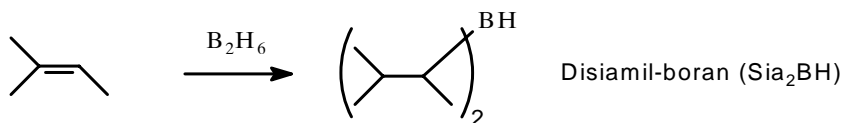


* *cis*-adicija "suprotno" Markovnikov-ljevom pravilu

* moguće prisustvo grupa: OR, OH, COOR, Cl, NH₂, SR

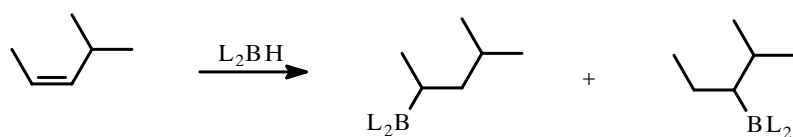


* često korišćeni voluminozni organoborani:



* Napad borana sa sterno manje zaštićene strane

* Voluminozniji borani su stereoselektivniji

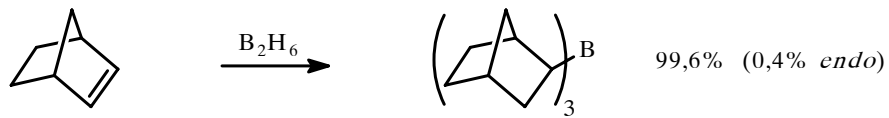


L = H 57 : 43

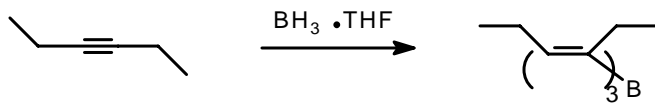
L = Siamil 97 : 3

L₂ = BBN 99,9 : 0,1

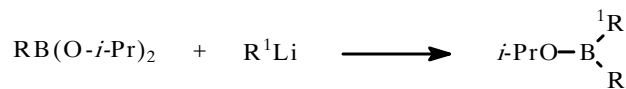
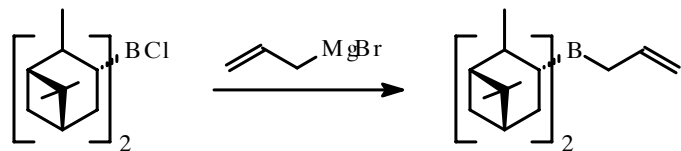
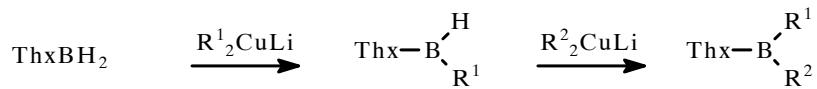
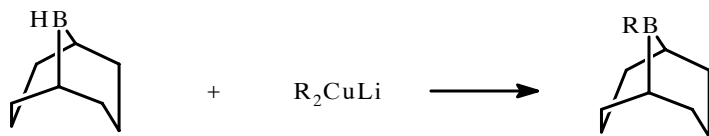
* Napad na biciklične sisteme vrši se sa sterno manje zaštićene strane:



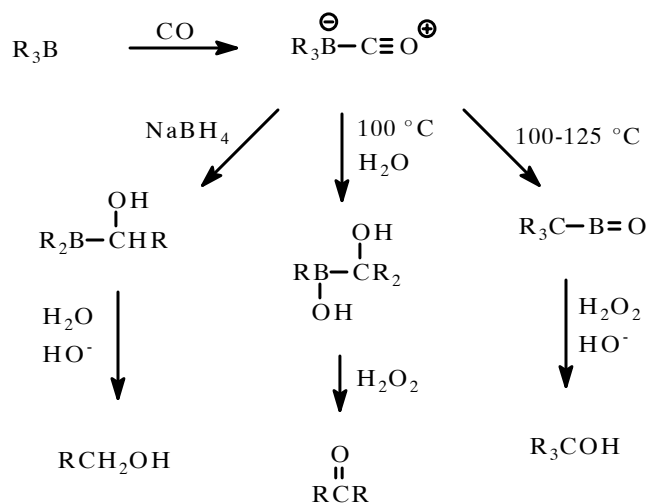
* *cis*-adicija na alkinе



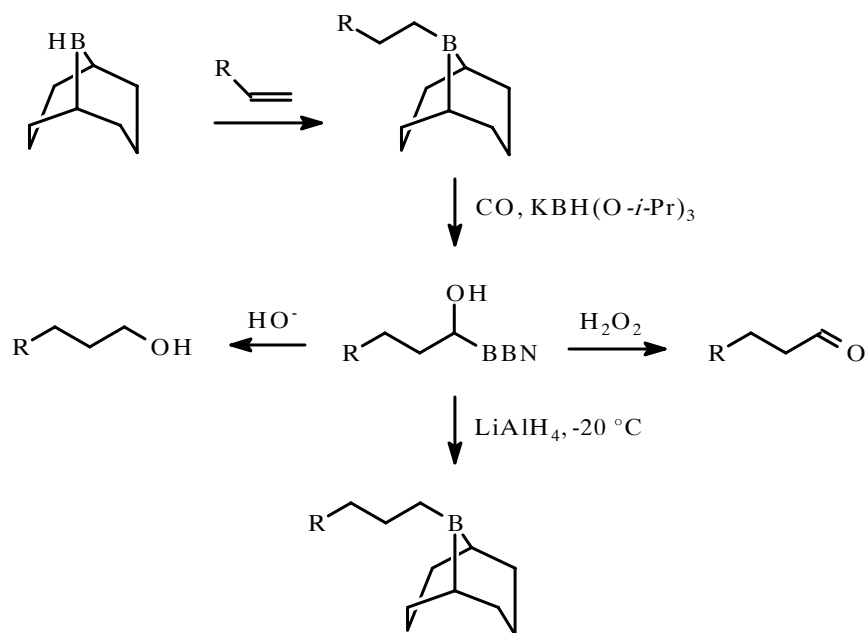
* Neki organoborani ne mogu se dobiti hidroborovanjem (npr.: R = Me, Bn, Ar, alil):



Reakcije sa CO:

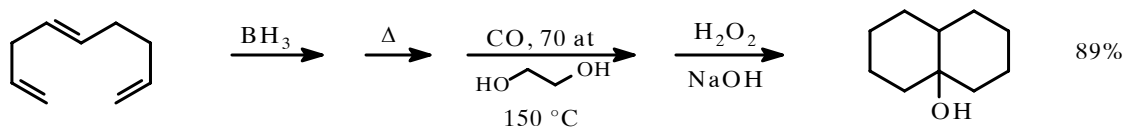
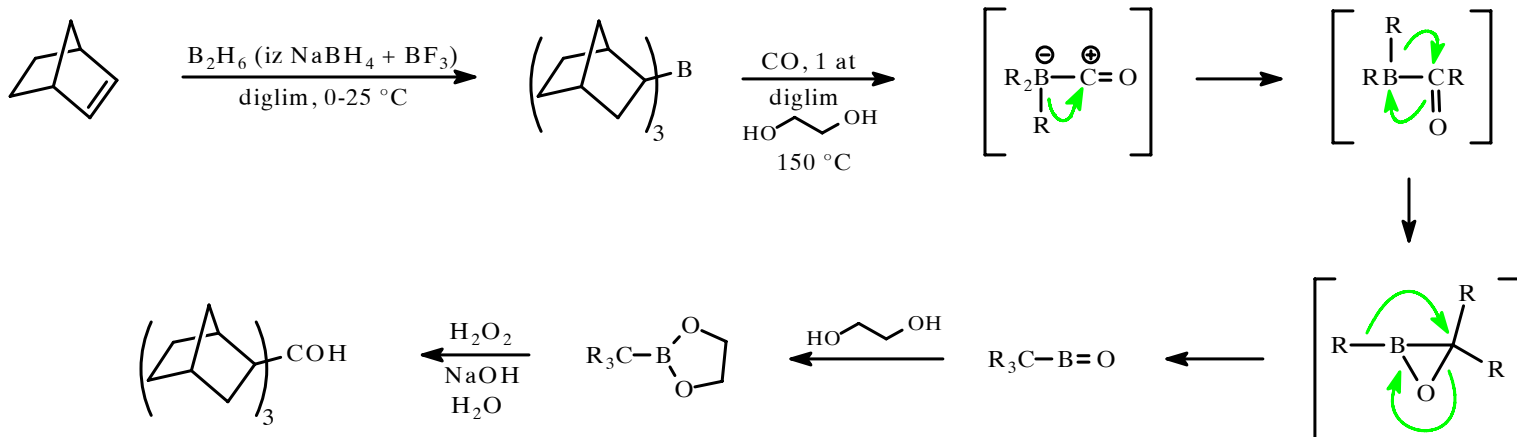


Migracija jedne grupe: koriste se 9-alkil-BBN (C-atomi iz BBN-a ne migriraju):

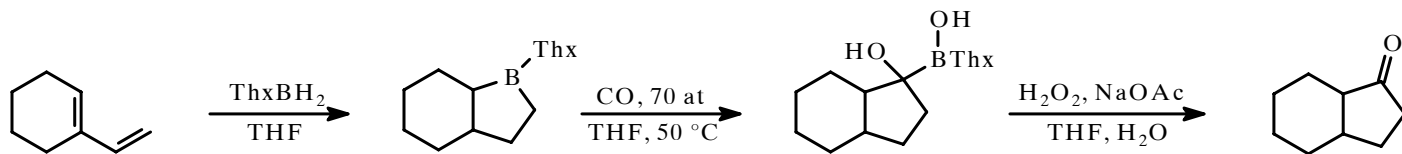
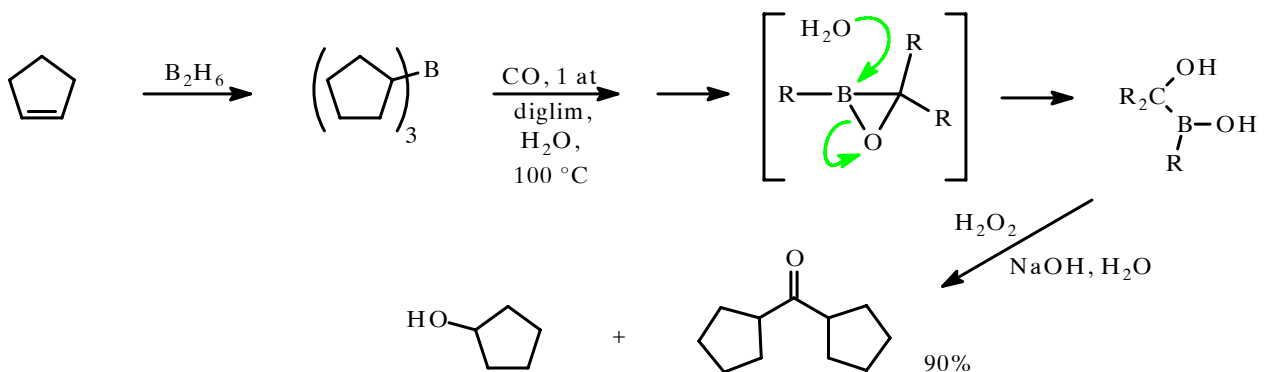


Reakcije sa C:O

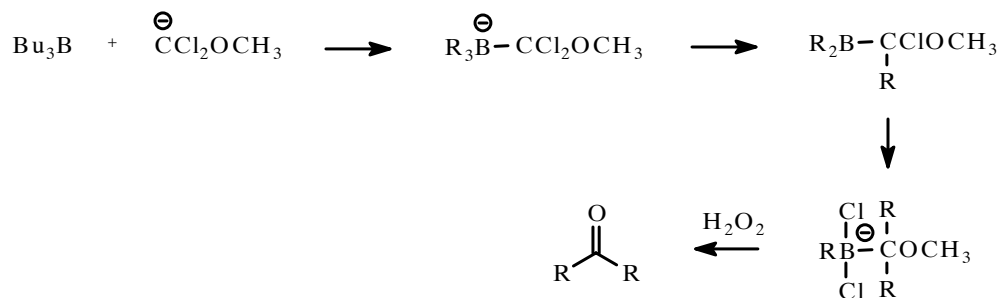
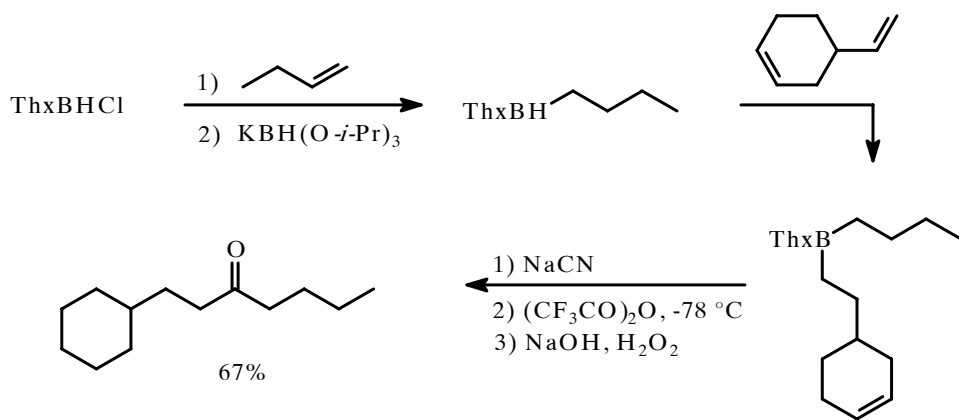
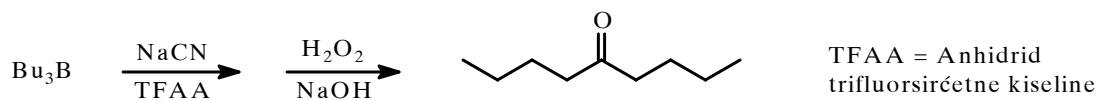
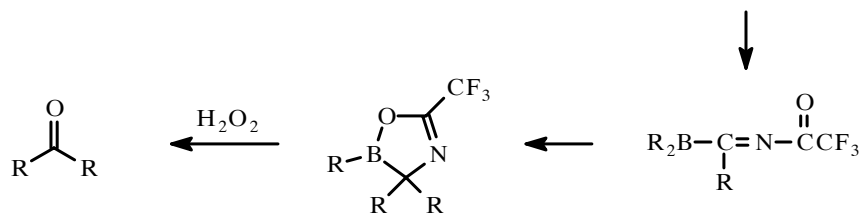
Bez prisustva H₂O: migracija sve 3 alkil-grupe, nastaju terciarni alkoholi



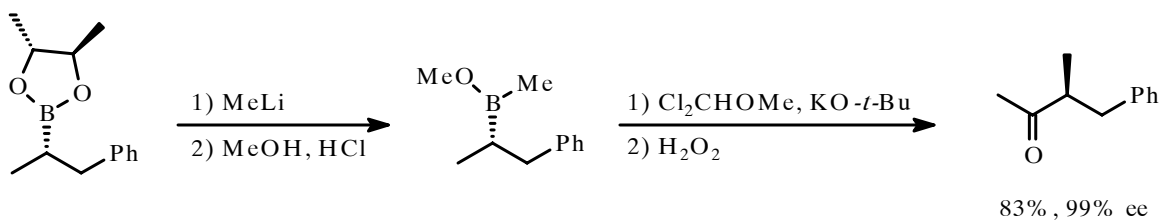
U prisustvu H₂O: migracija 2 alkil-grupe, nastaju ketoni



Zamene za CO: cijanid i dihlormetil-metiletar

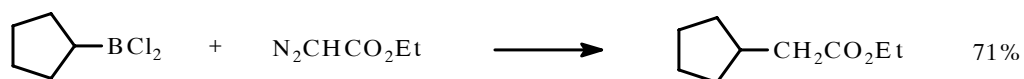
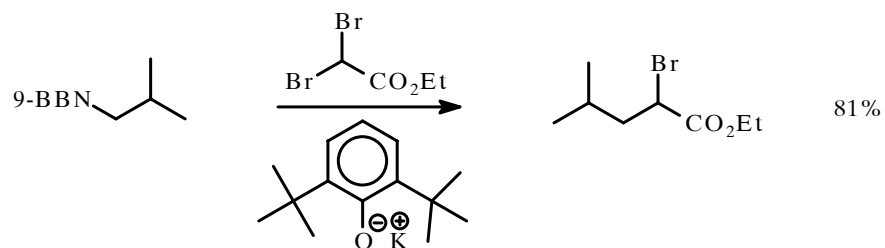
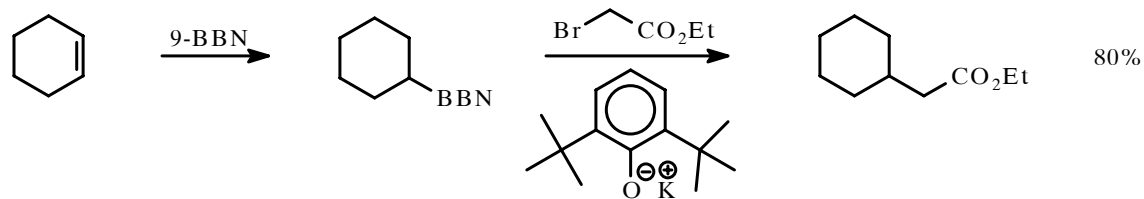
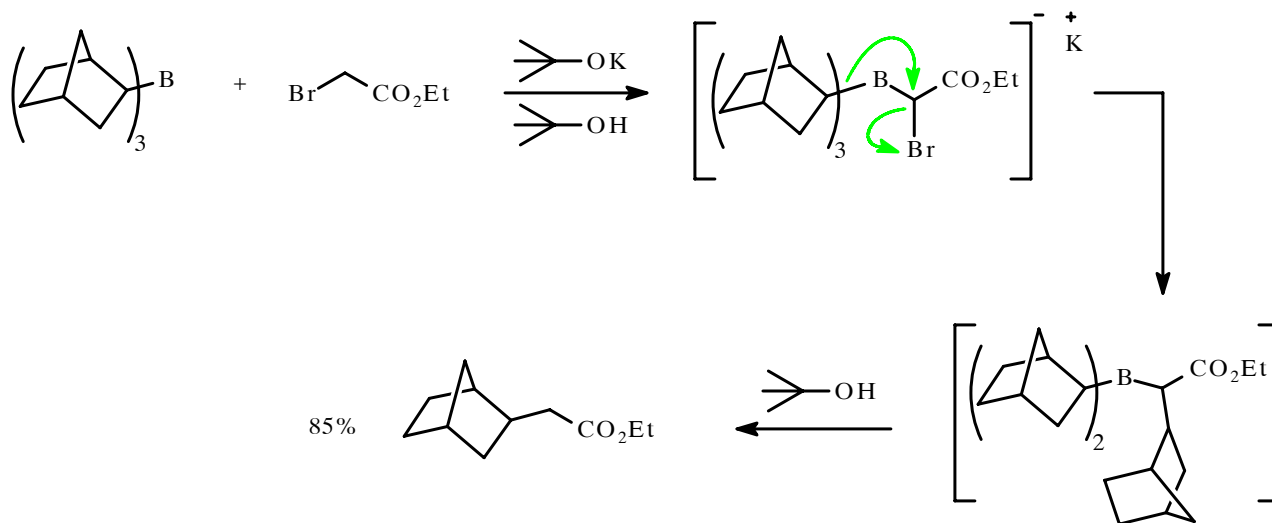


Migracija alkil-grupe sa borovog atoma vrši se sa retencijom konfiguracije, što je iskorišćeno u enantioselektivnim sintezama



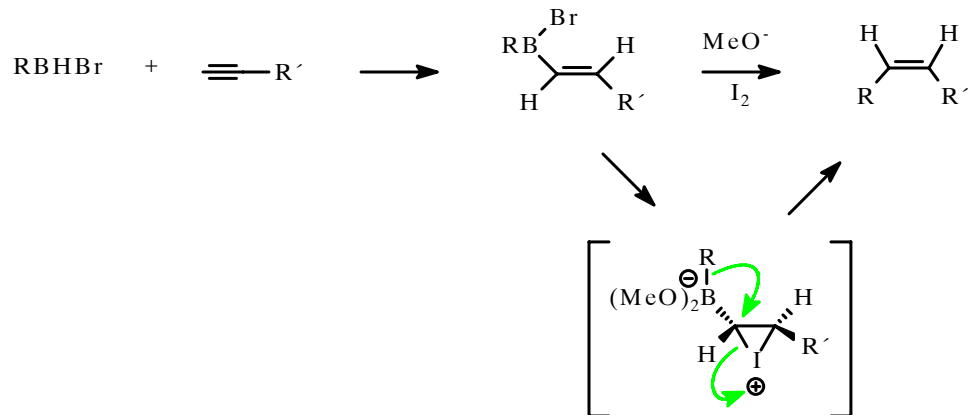
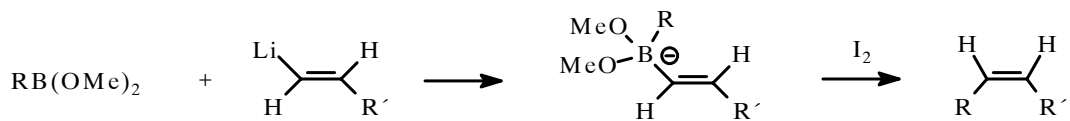
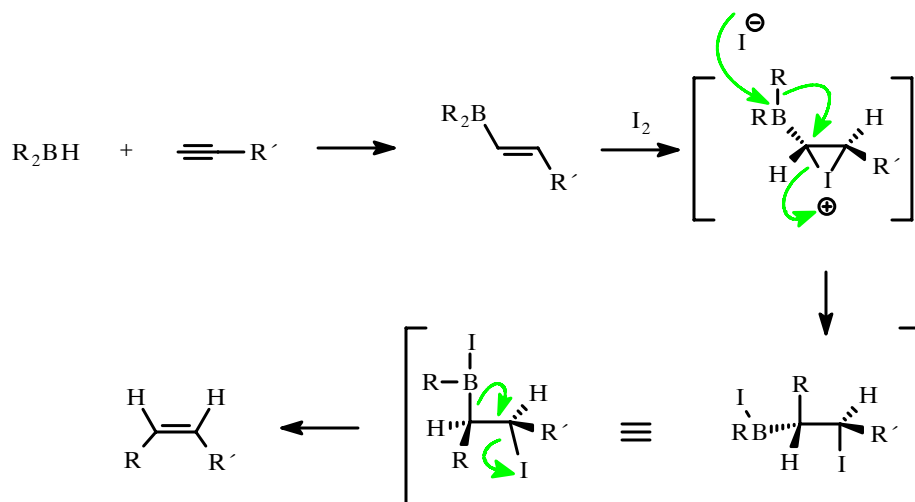
Reakcije sa haloenolatima $(\text{Br}-\overset{\ominus}{\text{C}}\text{H}-\text{Z})$

* Migracija se vrši sa retencijom konfiguracije stereocentra vezanog za B

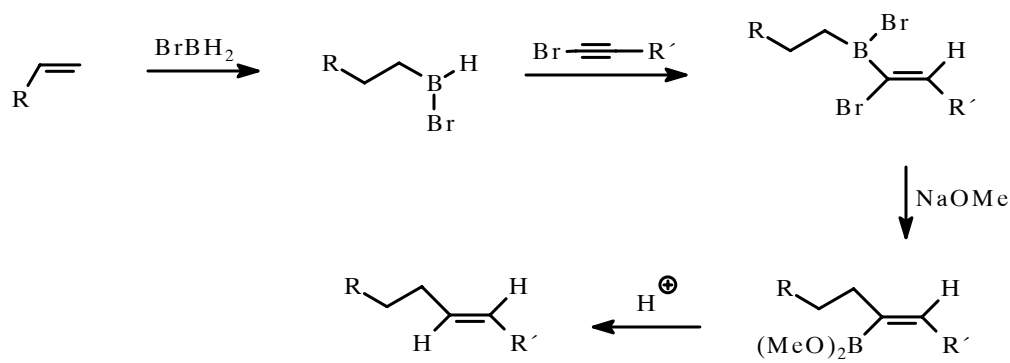
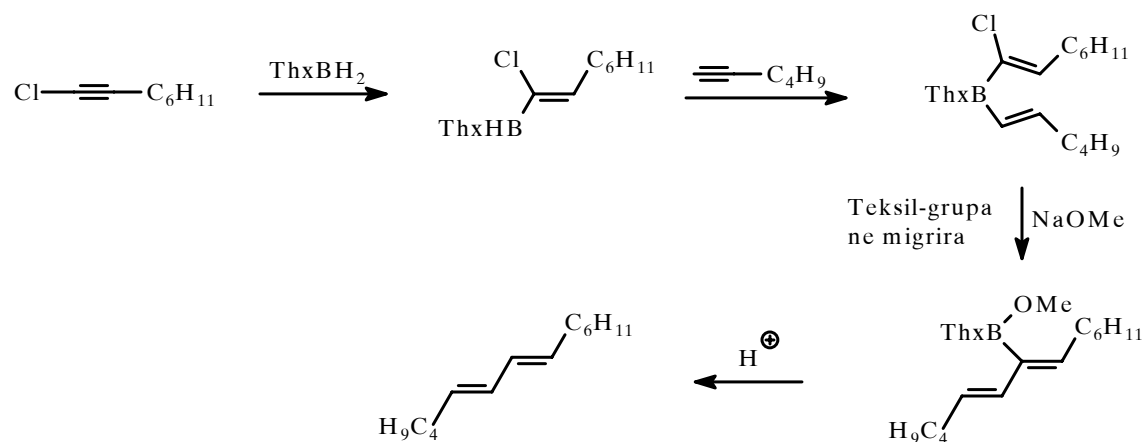


Stereoselektivne sinteze *Z*- i *E*-alkena

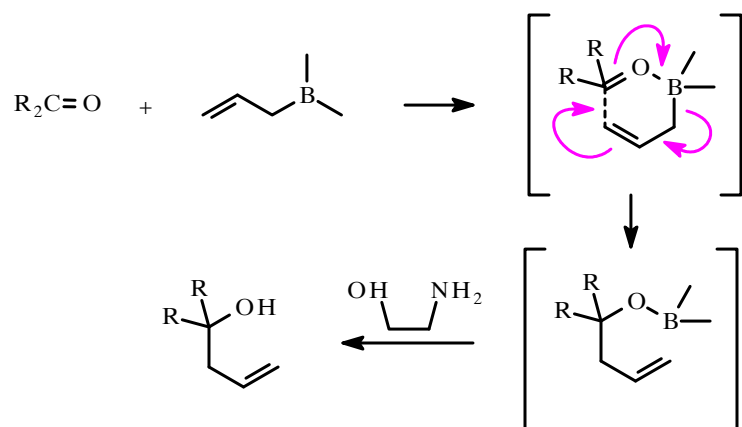
Z-alkeni:



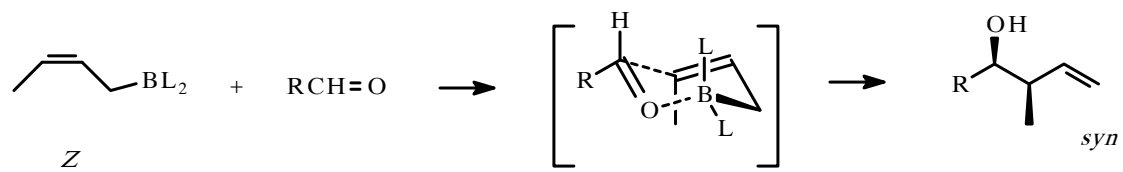
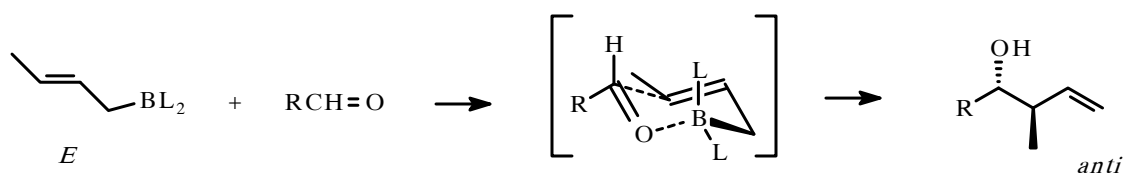
E-alkeni:



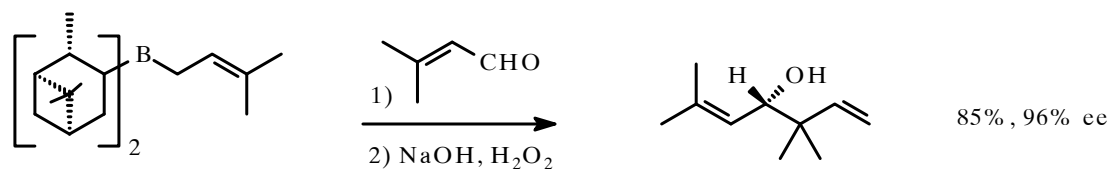
Alilovanje pomoću organoborana



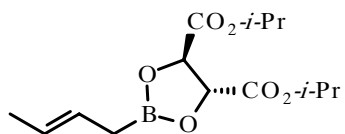
Alilovanje je diastereoselektivno:



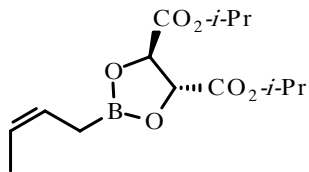
Hiralni reagensi: Ipc-borani



Najčešće korišćeni hiralni alil-borani: tartarati

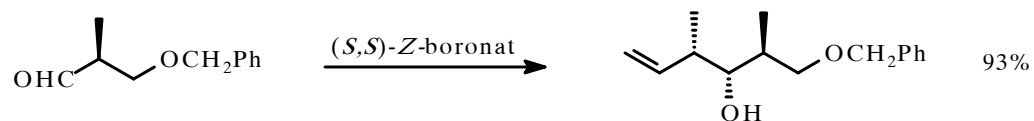
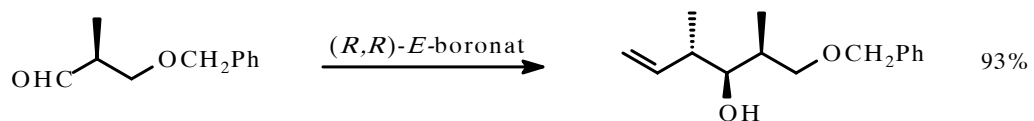


(*R,R*)-*E*



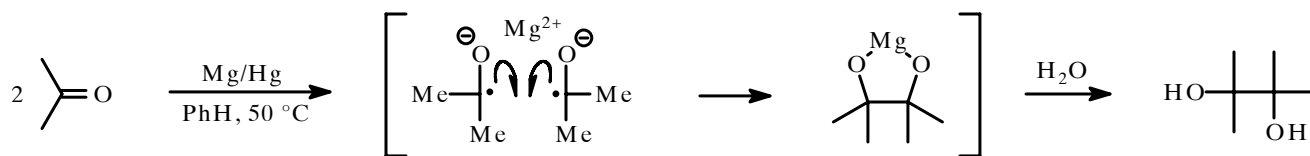
(*R,R*)-*Z*

Stereoselektivnost reakcije kontrolisana je reagensom

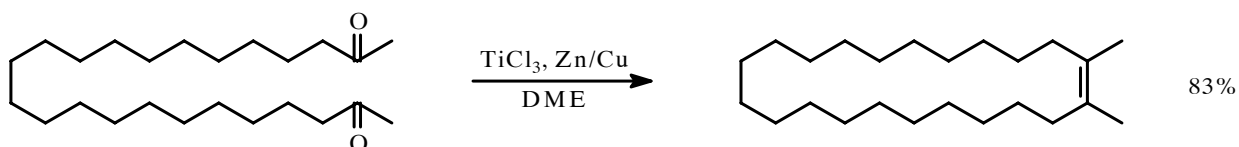
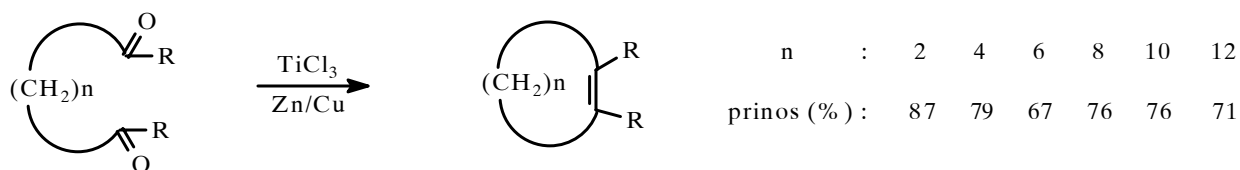
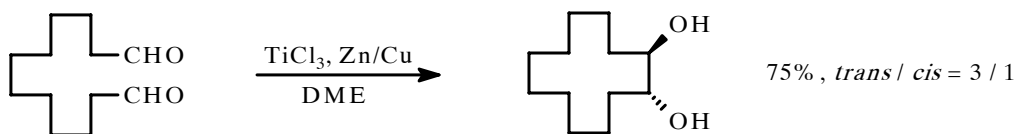
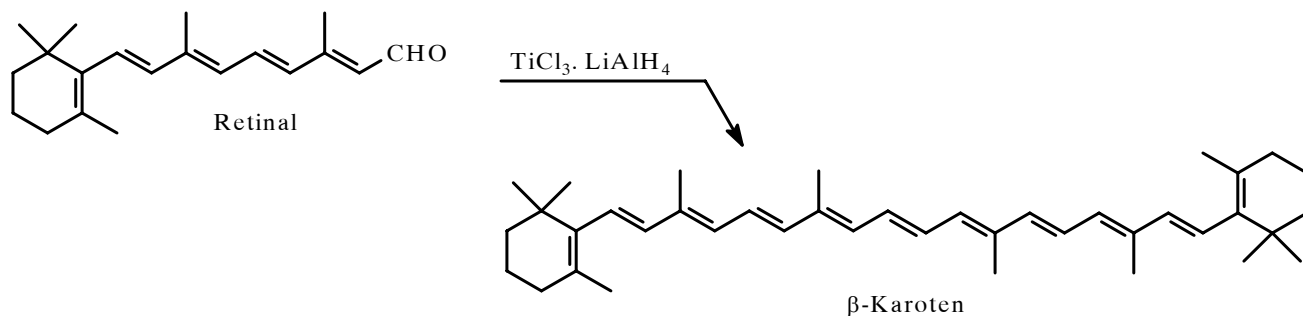
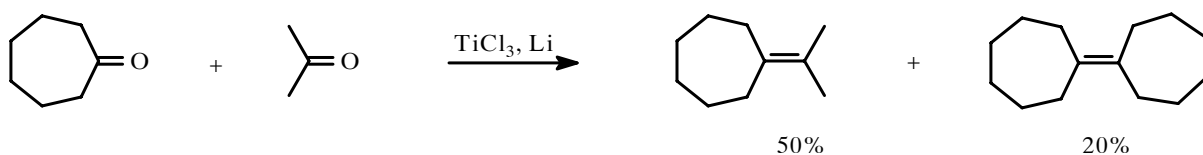
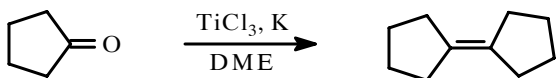


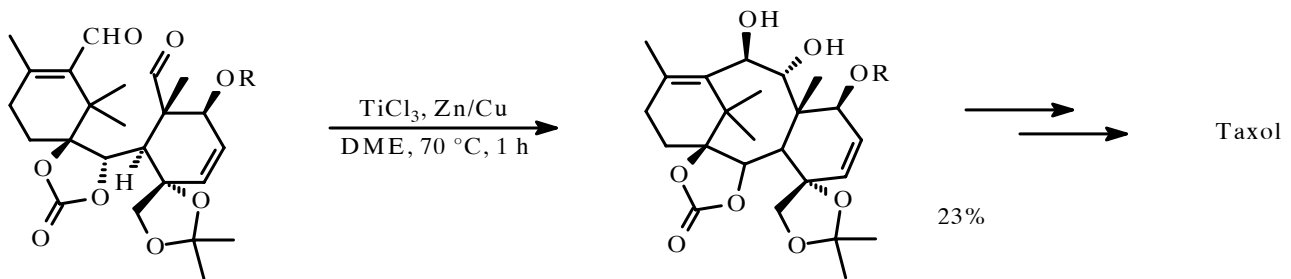
Stvaranje veza ugljenik-ugljenik redukcijom **C=O** i **COOR** grupa, u odsustvu H^+ -donora

*Pinakolska reakcija $M = Mg, Mg/Hg, Zn, Zn/Hg, Al/Hg, Ti$

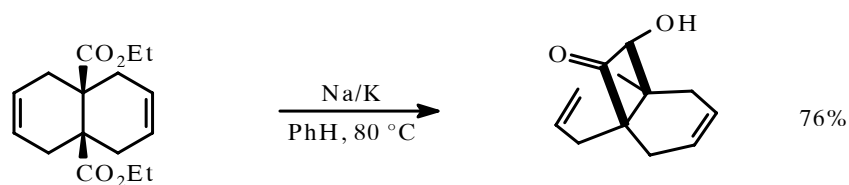
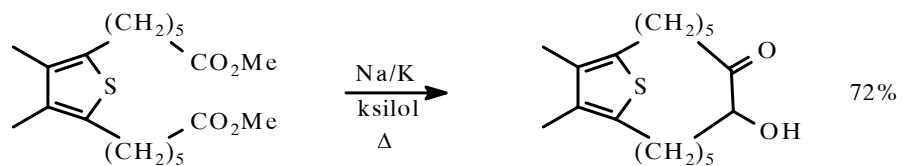
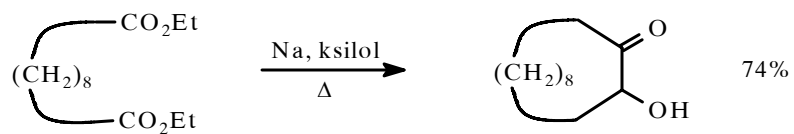
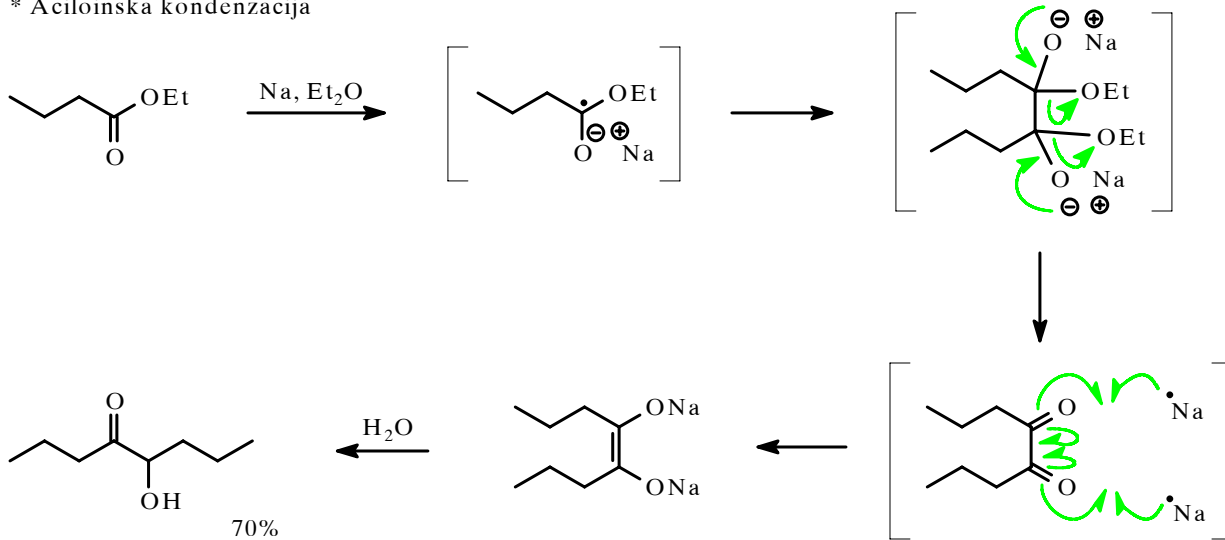


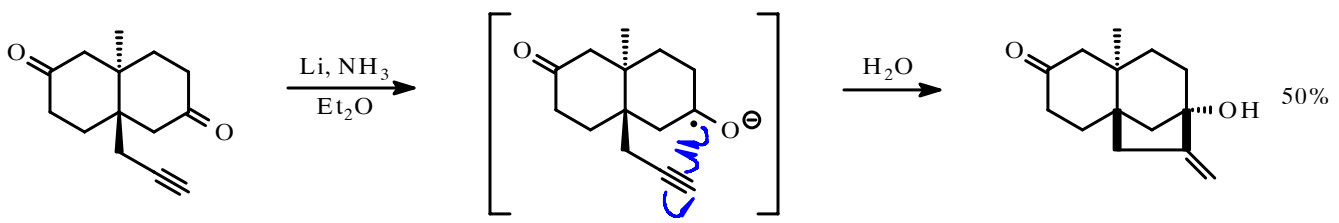
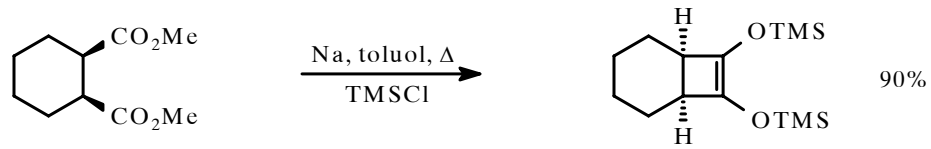
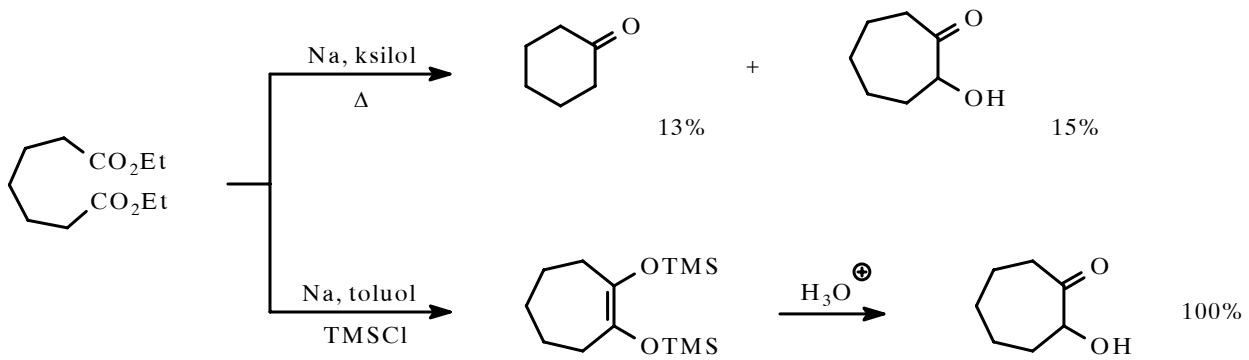
* Varijanta: *McMurry*-jeva reakcija



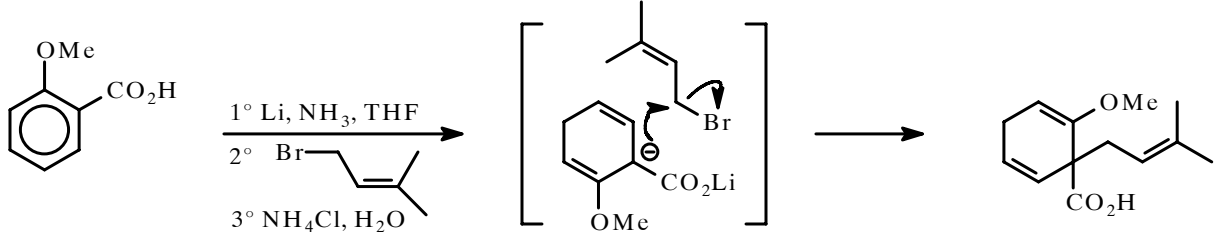


* Aciloinska kondenzacija

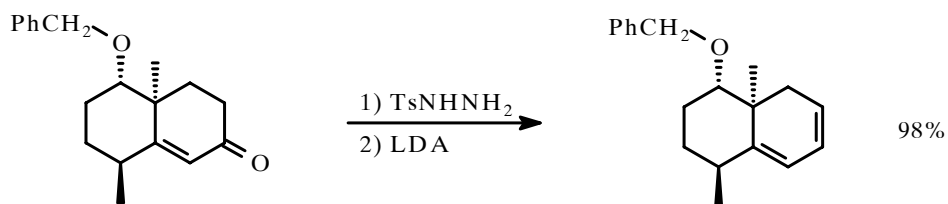
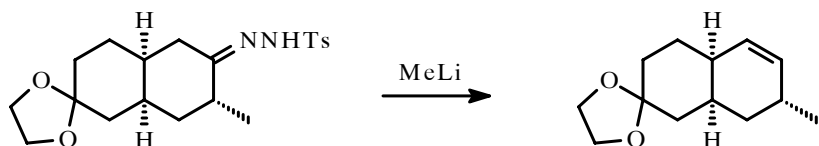
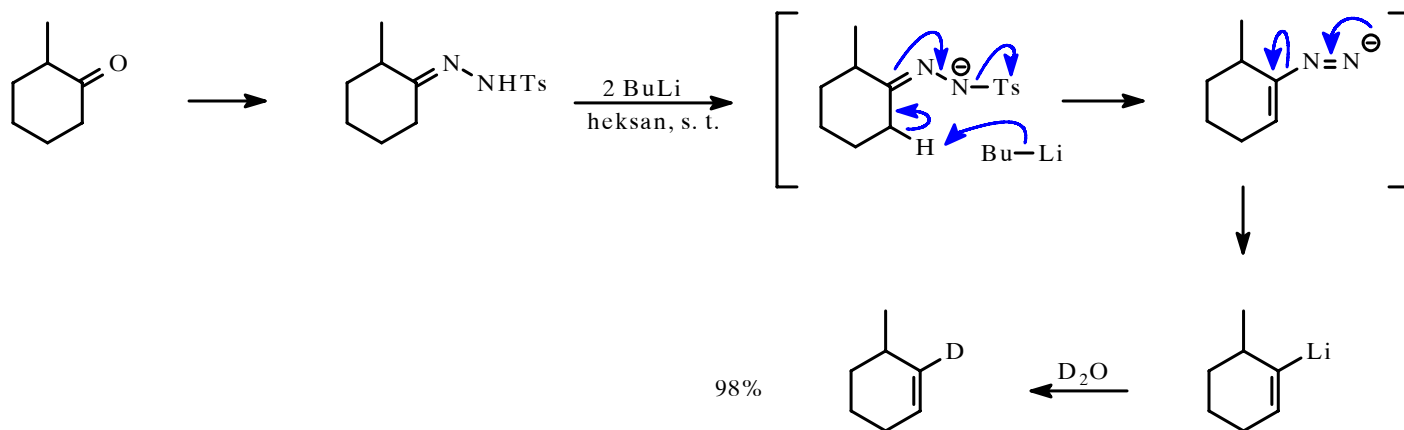




* Birch-ova redukcija + alkilovanje



Shapiro-va reakcija (poznata još i kao Bamford-Stevens-ova reakcija):
 C=C veza nastaje na manje supstituisanom kraju.



Eschenmoser-ova reakcija: fragmentacija tozilhidrazona α -epoksiketona u acetilenske derivate

