

# Addition Of Grignard Reagents To Aldehydes And Ketones

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from chapter(s) \_\_\_\_\_ in the recommended text

## A. Introduction

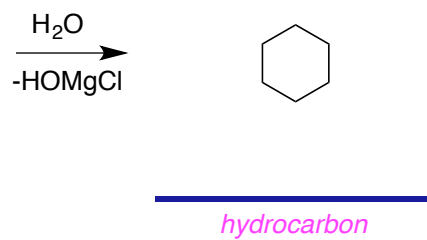
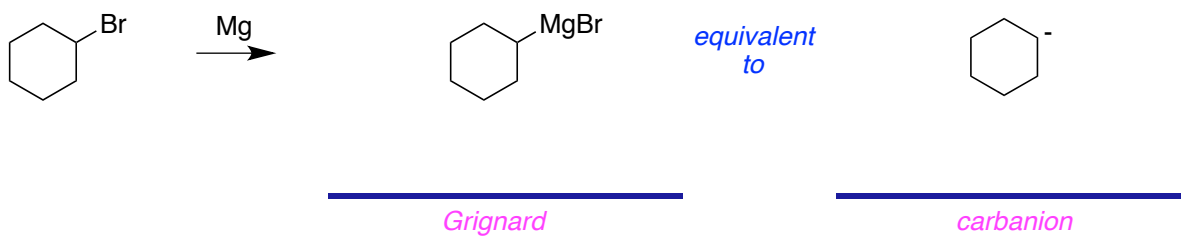
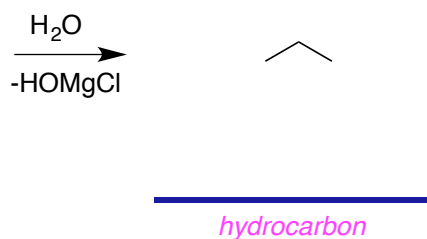
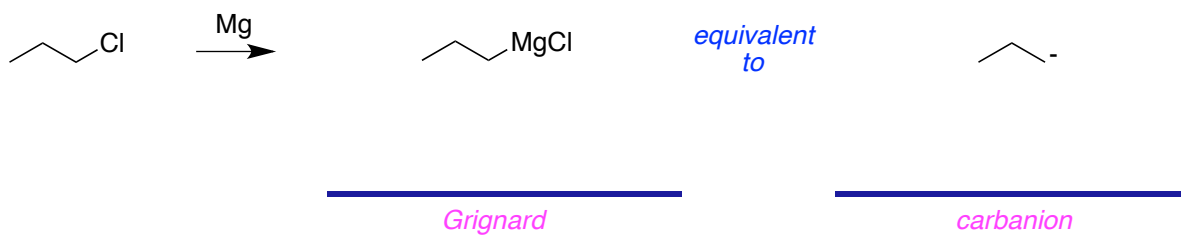
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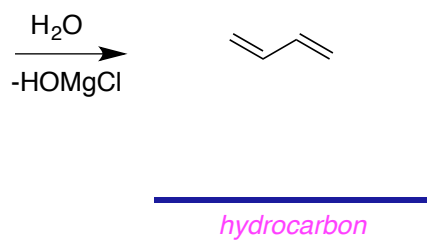
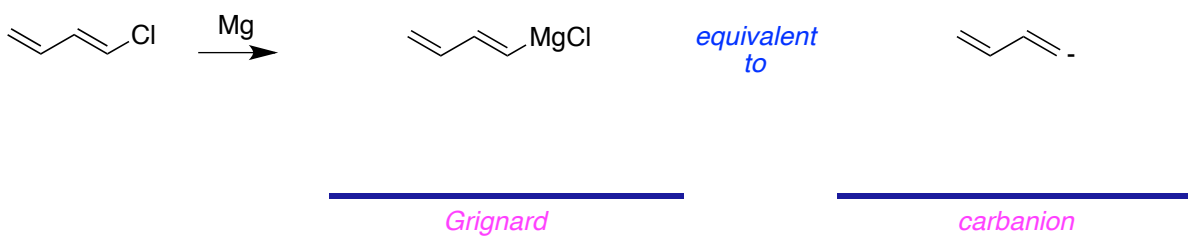
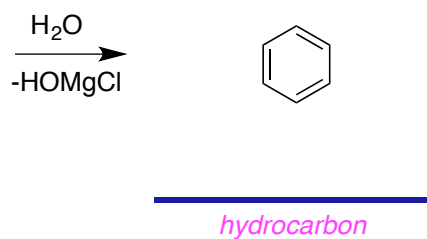
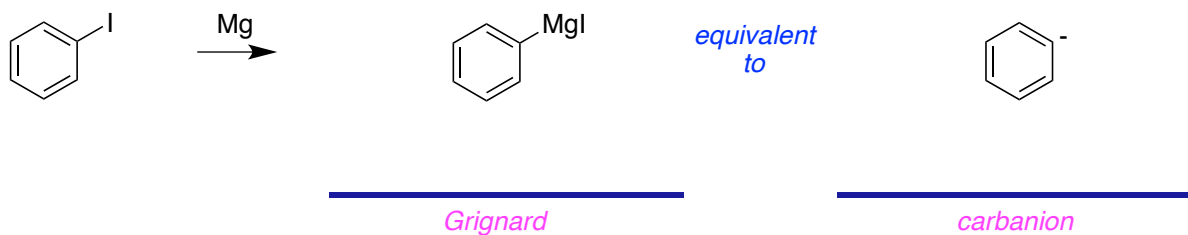
## B. Grignard Reagents: A Type Of Carbanion Equivalents

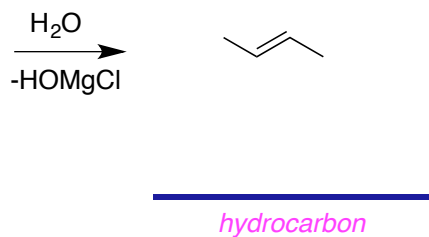
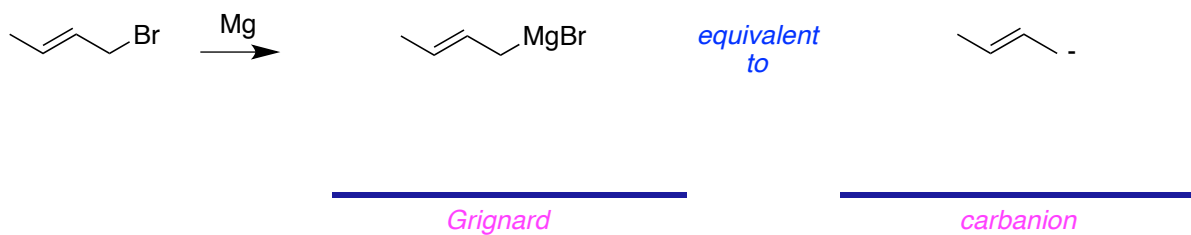
*magnesium*;

*strong* base

*cannot* be formed from compounds liberating *ethyne*.

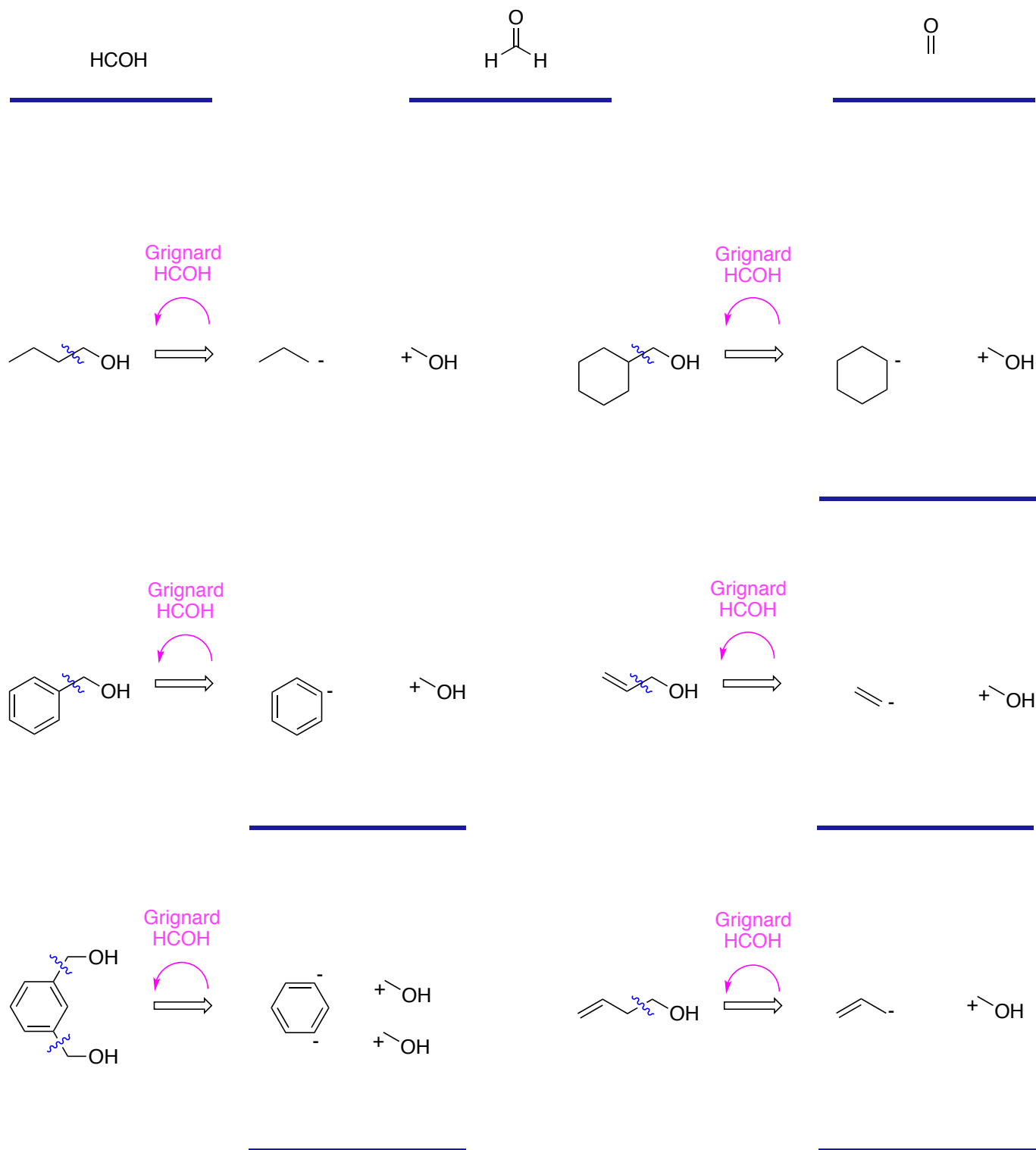


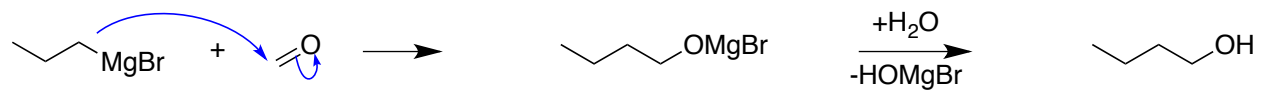




1,2-dichloroethane	<u>bromobenzene</u>	<u>benzyl bromide</u>	butane
<u>allyl chloride</u>	<u>2-chloropropane</u>	1,2-diiodopropane	2-chloroethanol
diethyl ether	fluoroethane	bromoethanal	3-iodopropanol
<u>chloro(methoxy)methane</u>	1-bromo-3-methoxy-ethanal		<u>bromoethane</u>

## C. Reactions Of Methanal With Grignard Reagents



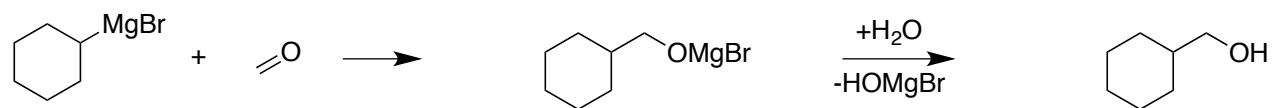



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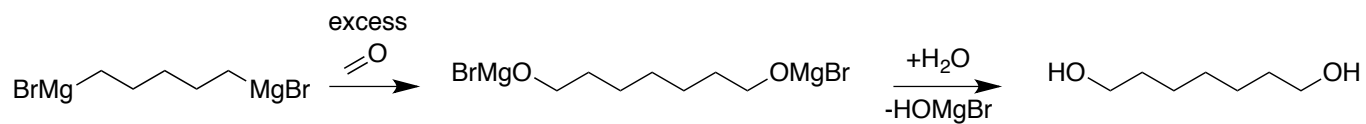
*primary alcohols*  
*one more*




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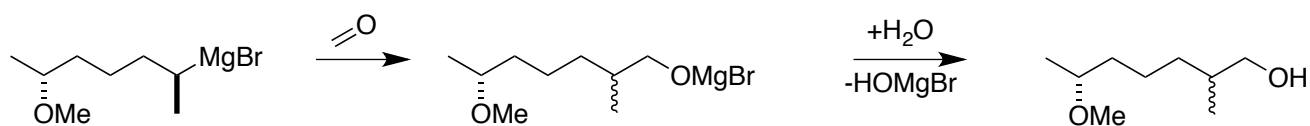
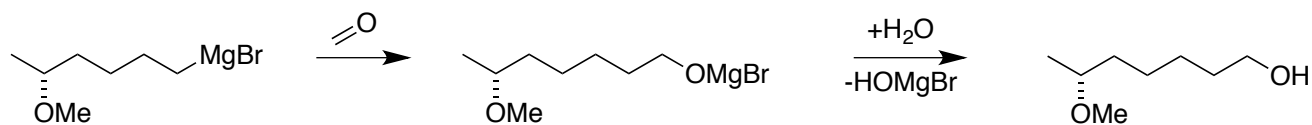
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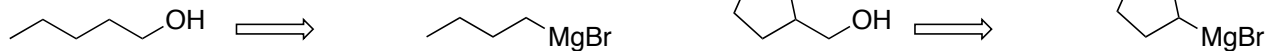

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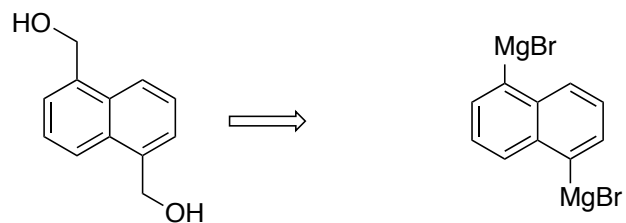
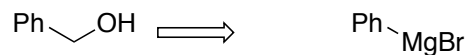
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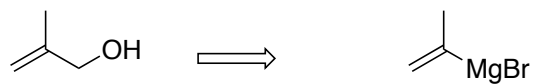
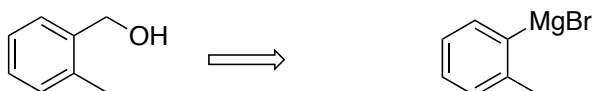
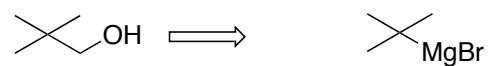
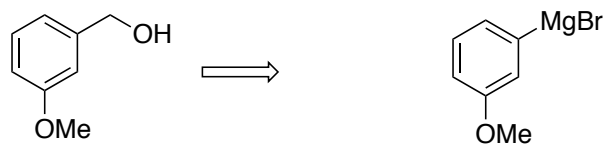
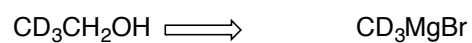
*primary*



*a di-Grignard*



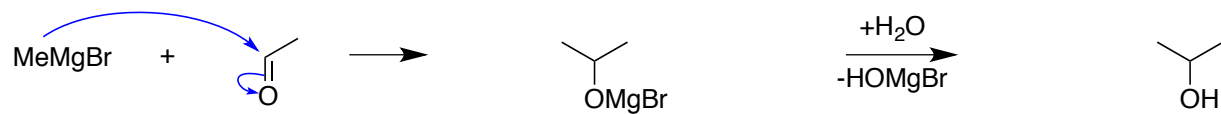
*a di-Grignard*



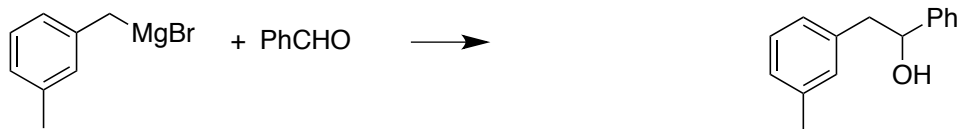
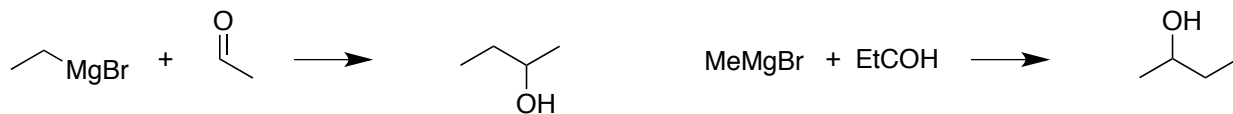
*more* basic than  
compounds *irreversibly*.  
*primary* because methanal has *two*  
*secondary* alcohols.

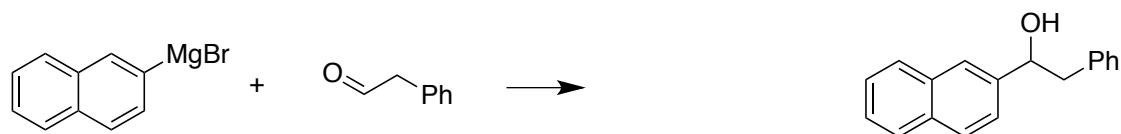


## D. Reactions Of Other Aldehydes With Grignards

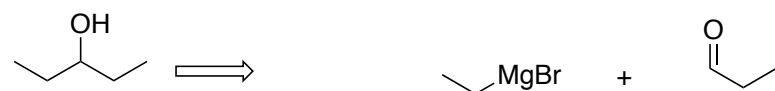


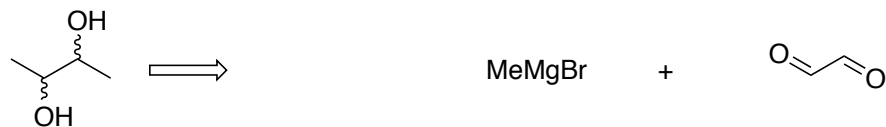
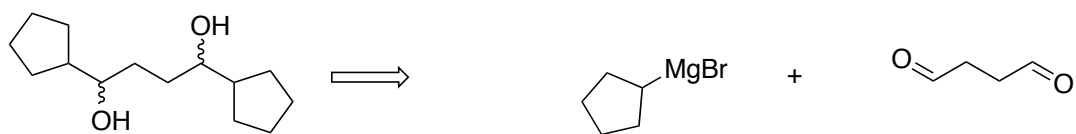
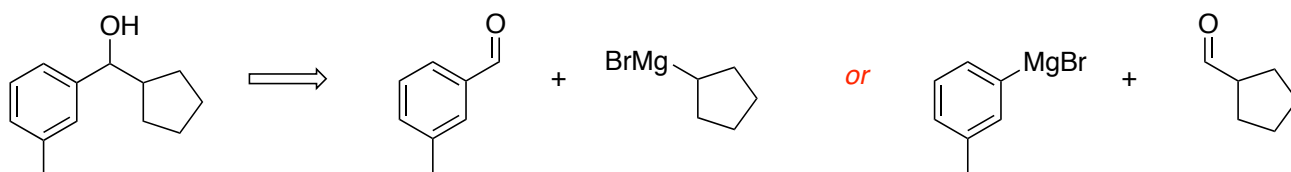
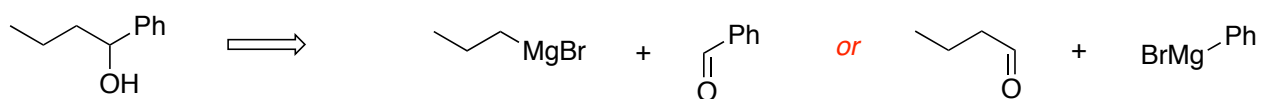
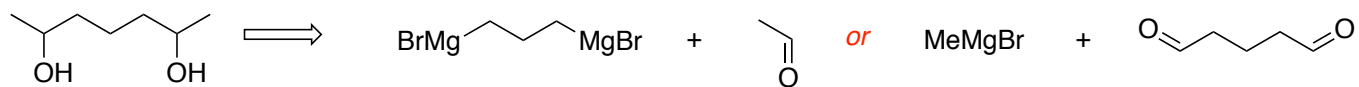
give *secondary* alcohols with *the same*



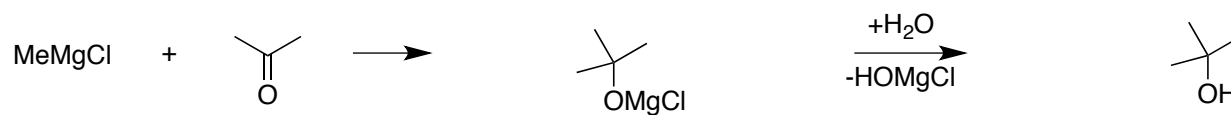


*secondary* alcohols

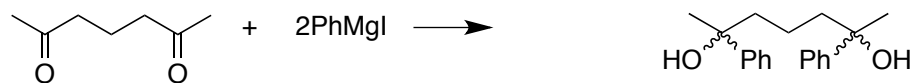
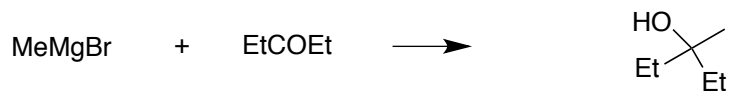
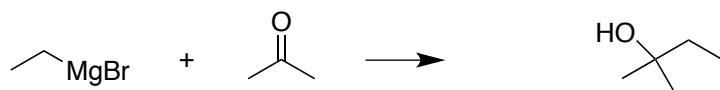


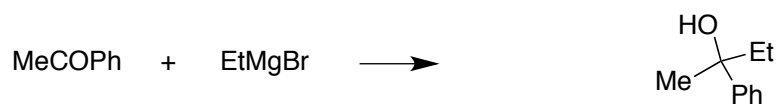
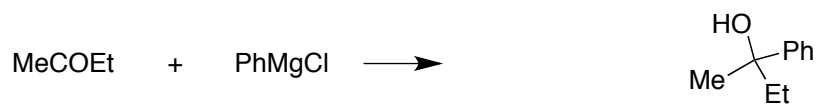
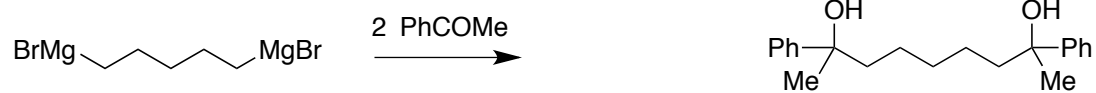


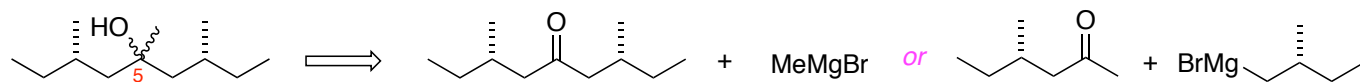
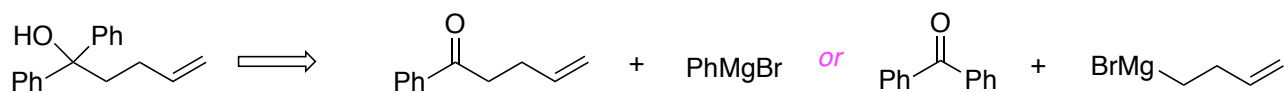
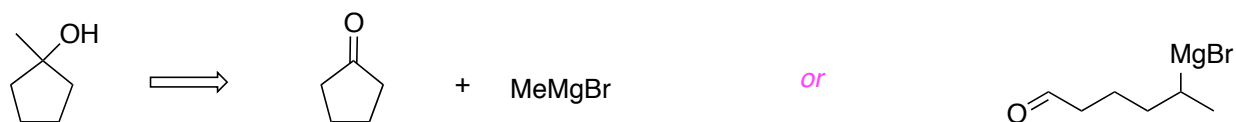
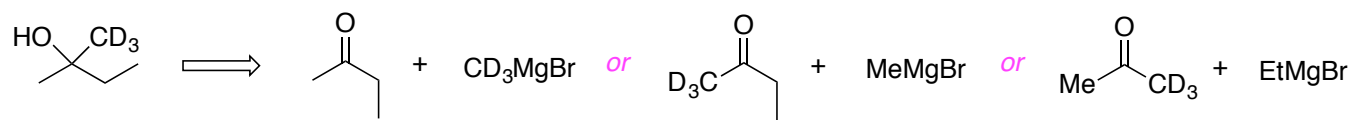
## E. Reactions Of Ketones With Grignards



*tertiary* alcohols.  
*the same*  
*must* be the

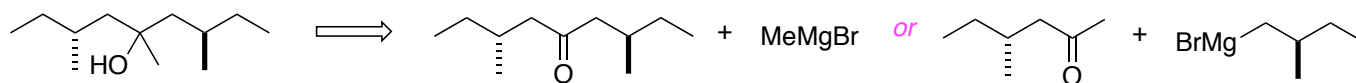






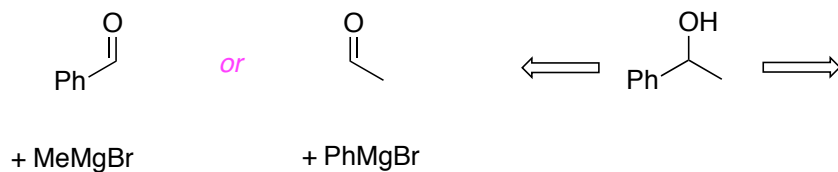
*is*

*is not possible*

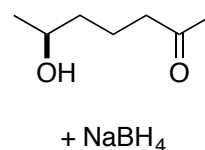
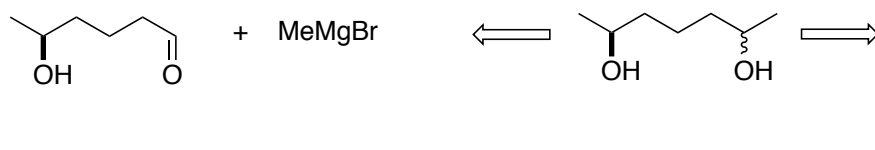
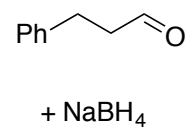
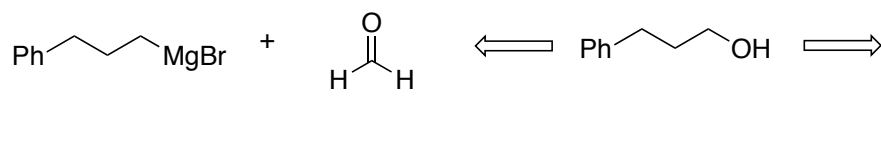
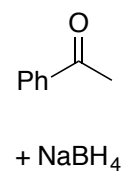


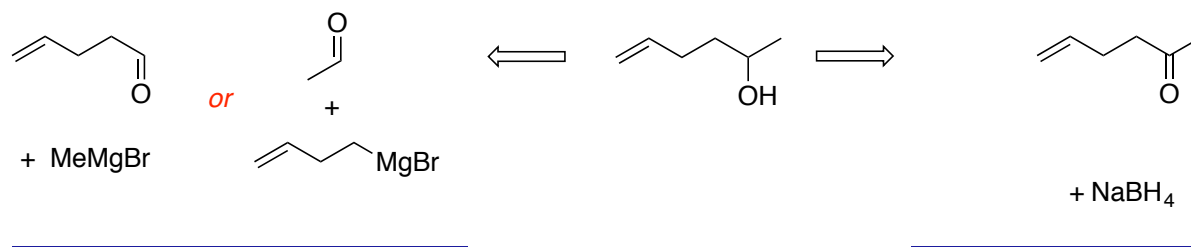
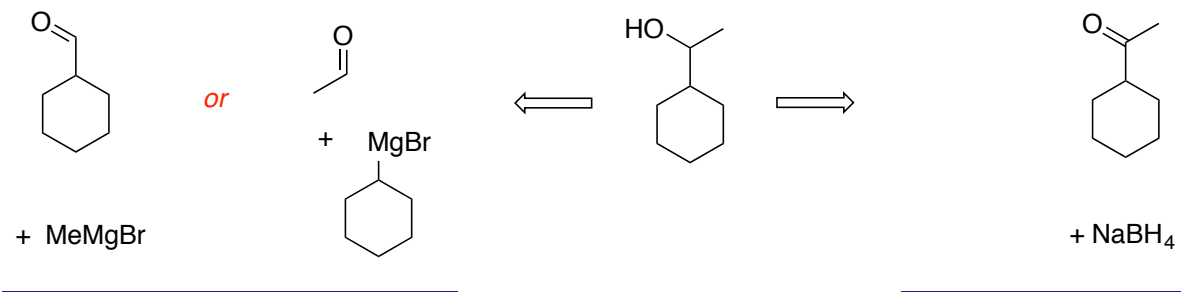
## F. Complimentary Grignard and Hydride Reductions

*a Grignard route*



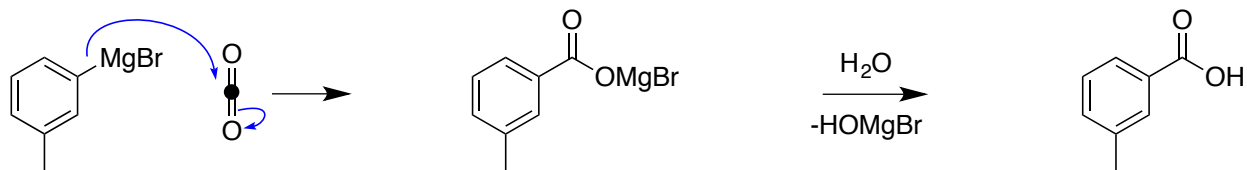
*hydride route*





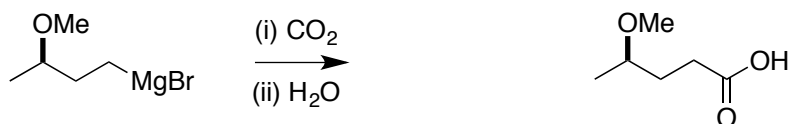


## G. Reactions Of Carbon Dioxide With Grignards

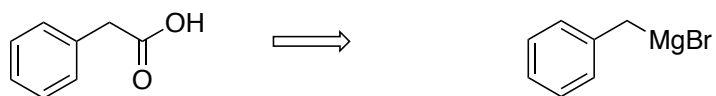


carboxylic acid.

*one more* carbon than the Grignard.







*almost always*