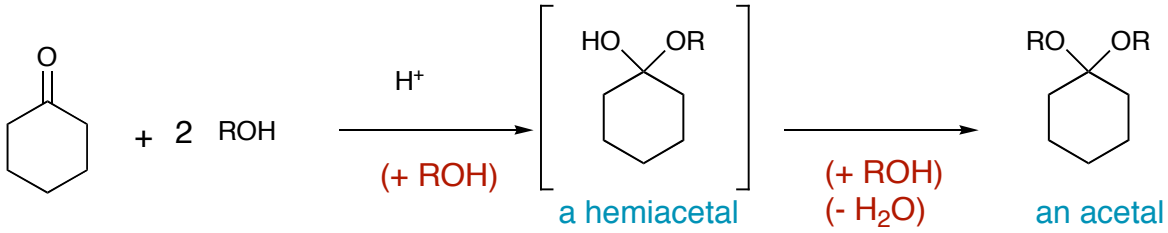
Chapter 19 - Aldehydes and Ketones: Nucleophilic Addition Reactions

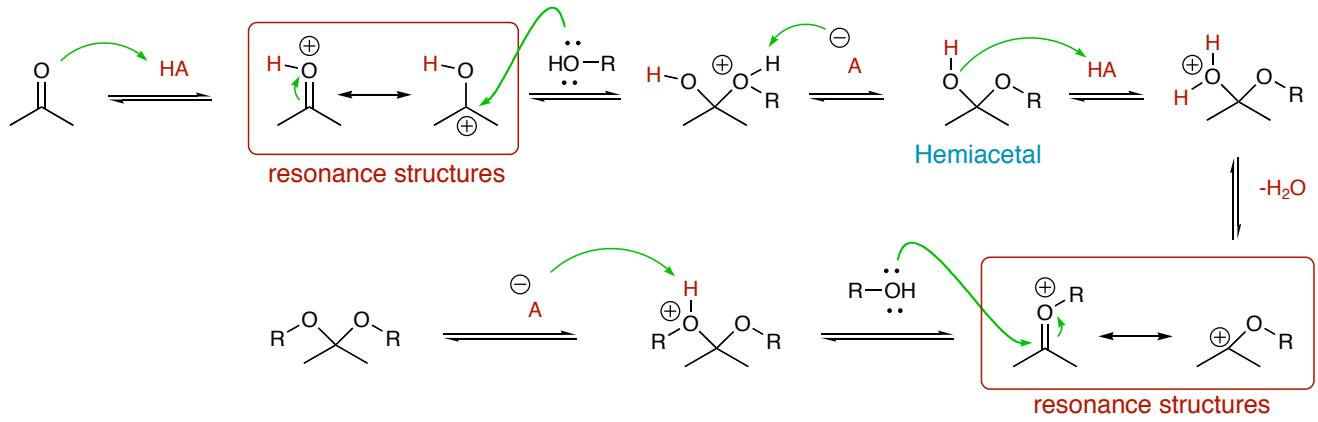
Acetals

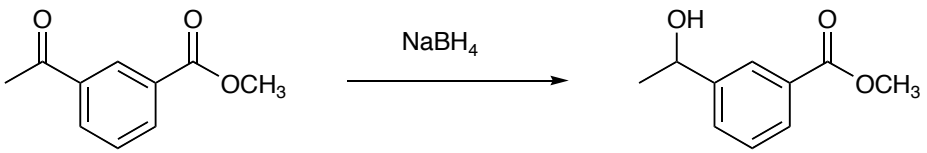
An acetal is similar to a hydrated carbonyl except instead of water adding, an alcohol is added. Acetals are relatively stable and can be used as protecting groups for aldehydes and ketones.



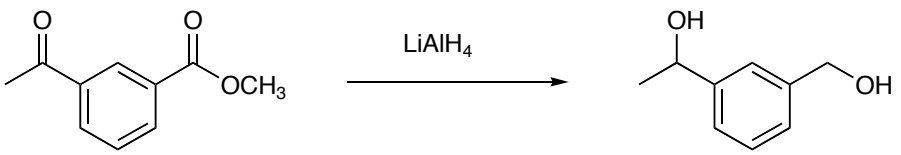
NEED TO KNOW MECHANISM

Mechanism for Acetal Formation



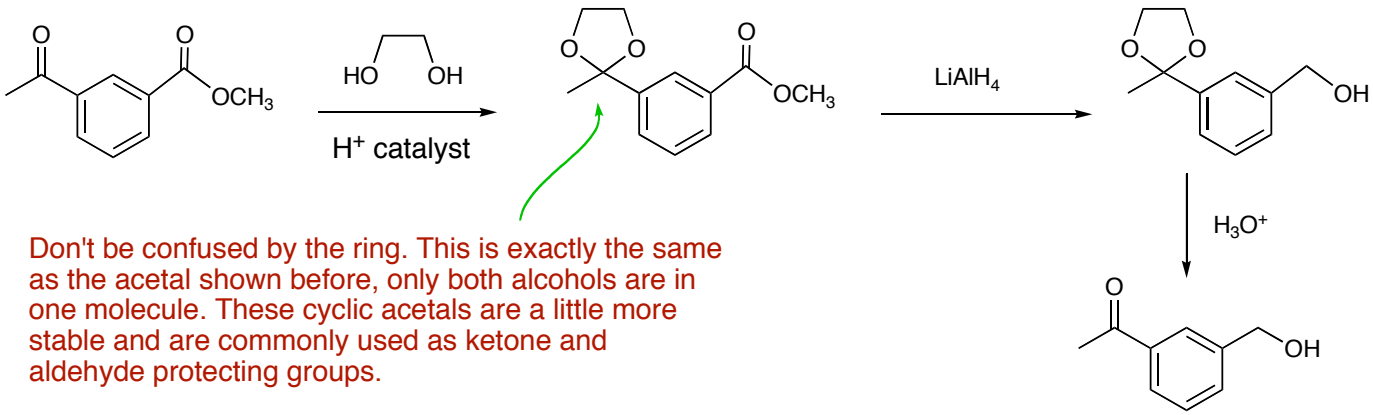


sodium borohydride reduces the ketone



lithium aluminum reduces the ketone and the ester

How do we reduce the ester but not the ketone? Protect the ketone as an acetal first!!



Don't be confused by the ring. This is exactly the same as the acetal shown before, only both alcohols are in one molecule. These cyclic acetals are a little more stable and are commonly used as ketone and aldehyde protecting groups.