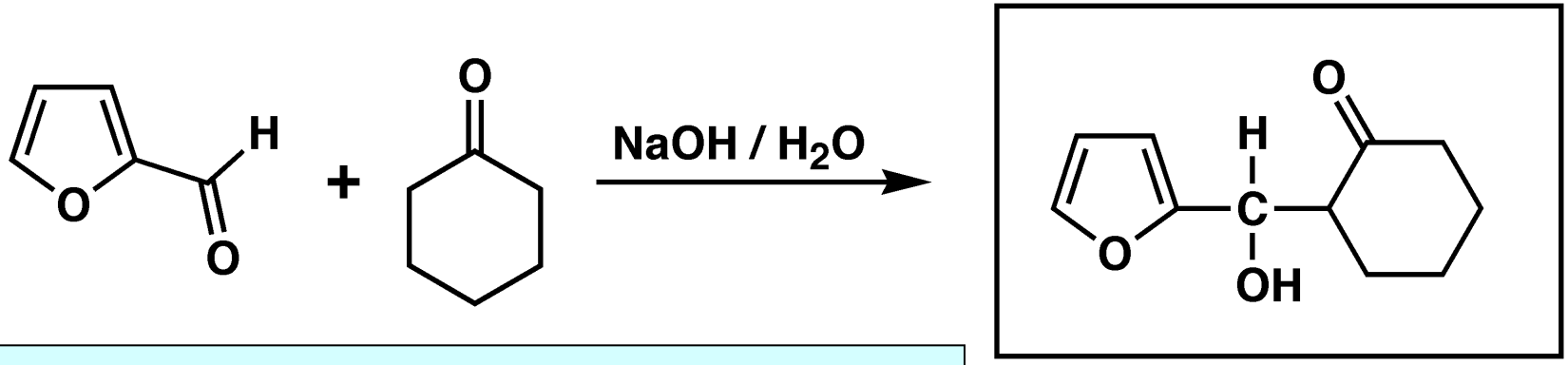
Mixed Aldol Reactions

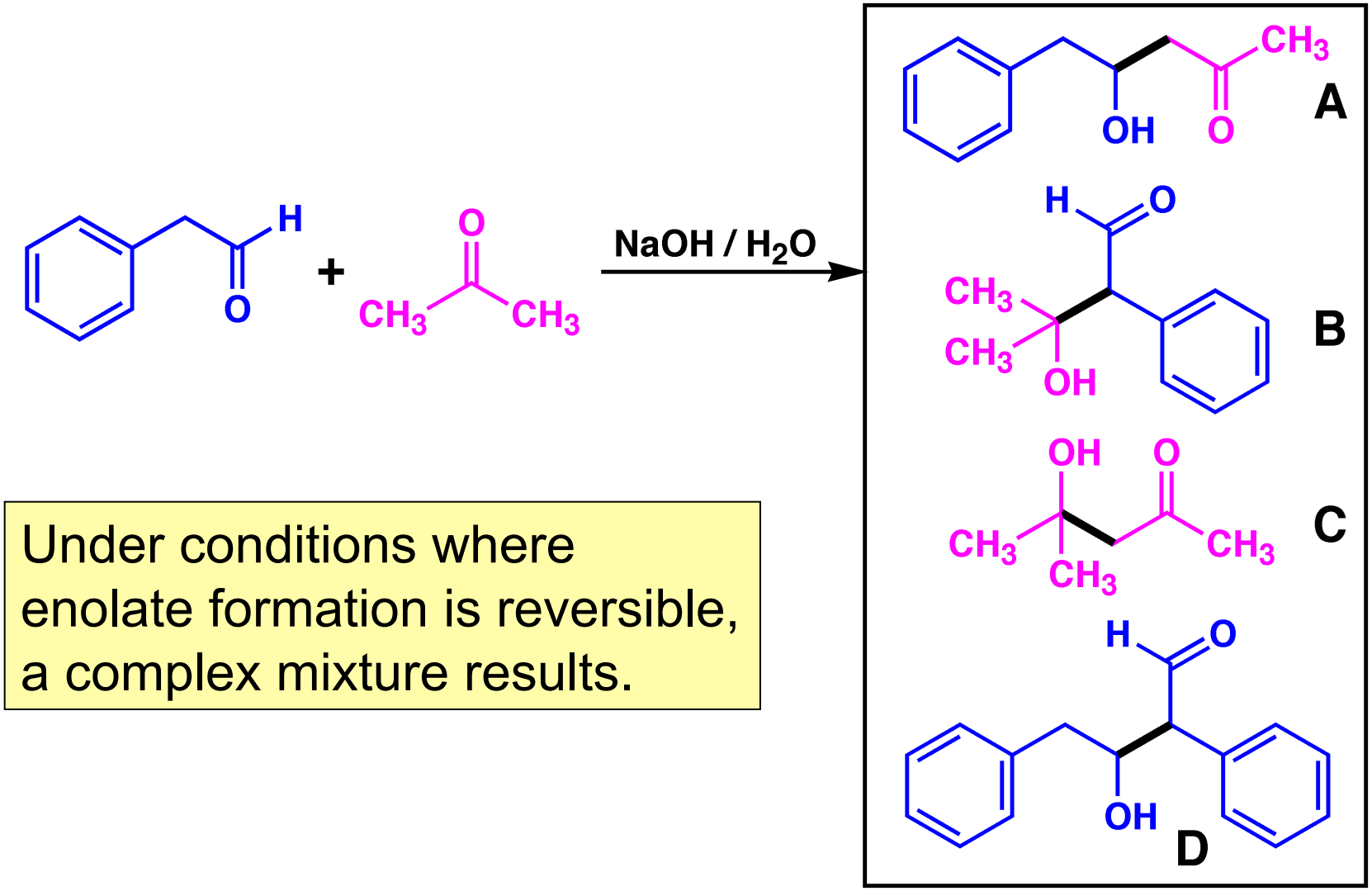
Mixed aldol reactions involve two different carbonyl compounds. Up to four products are possible (two "self-addition" and two "crossed-addition" products).

Mixed aldol reactions between an aldehyde with no α-hydrogens and a ketone generally give good yields of a single product



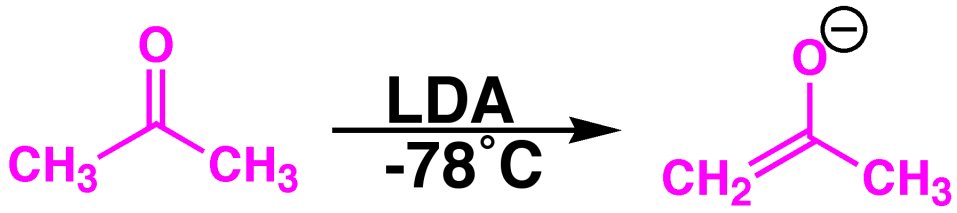
- Only enolate possible is from the ketone
- Aldehydes are better electrophiles than ketones

Possible Products from a Mixed Aldol Reaction



Under conditions where enolate formation is reversible, a complex mixture results.

Crossed-Aldol Using Preformed Enolates



If the enolate is preformed and added to the aldehyde, the desired crossed-aldol product will be obtained in high yield.