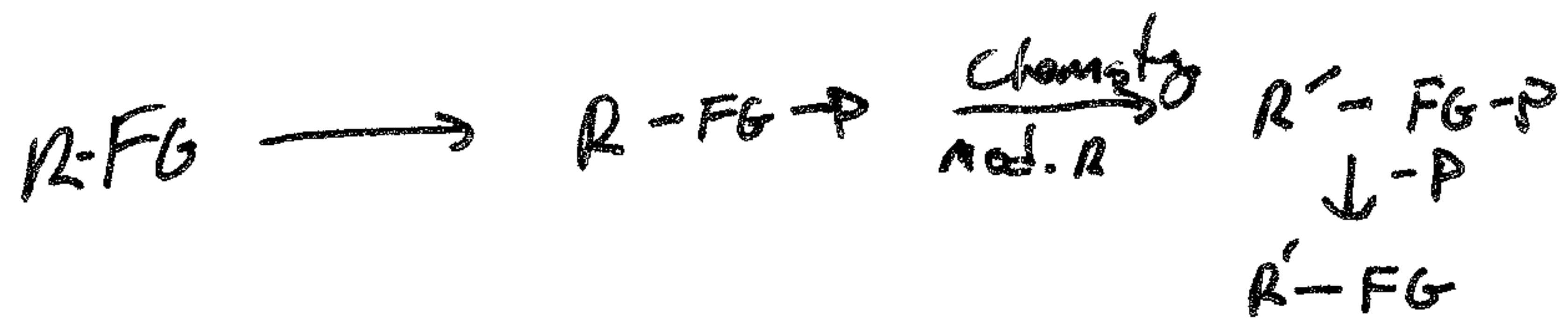


Quick guide to Protecting Groups - Chem 634 - F09

Basic Notion: Protecting groups are groups of atoms that are attached to (and later removed from) a functional group to mask it from competitive undesired reactions.



Advantages: Allows rxn that otherwise would not be possible.

Disadvantages: Extra steps (at least 2 - protection & deprotection), lowered yield, low atom economy, added mass of P.G. on substrate.

Considerations: Protecting group & both protection/deprotection sequences must be compatible w/ all other desired steps & other functional groups.

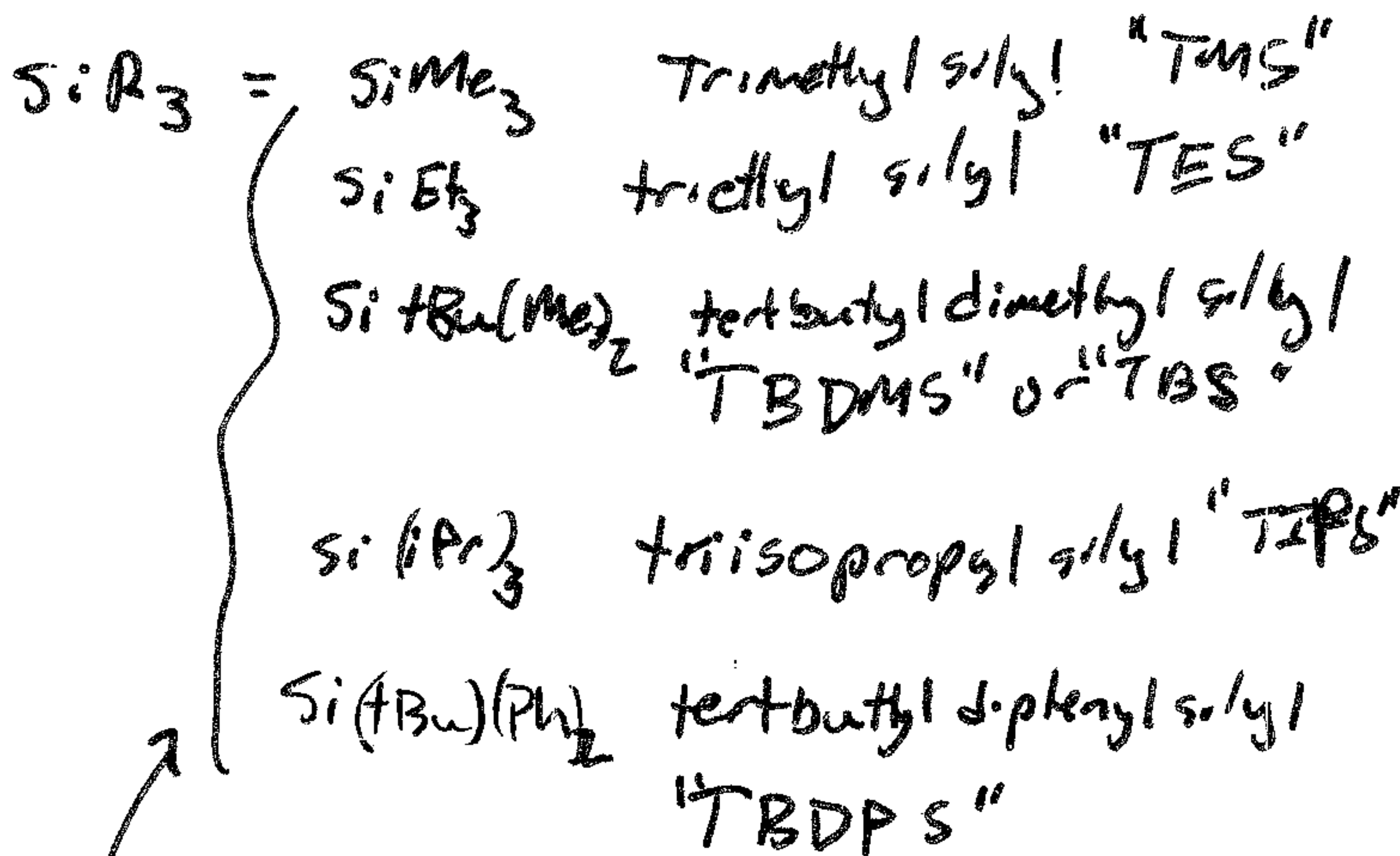
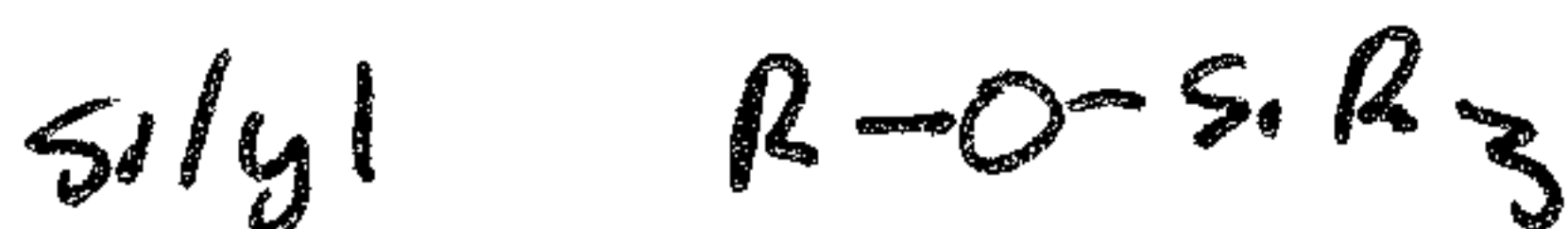
Bible of Protecting Groups!

Protective Groups in Organic Synthesis
by Theodora Green & Peter Wuts.

Published by Wiley.

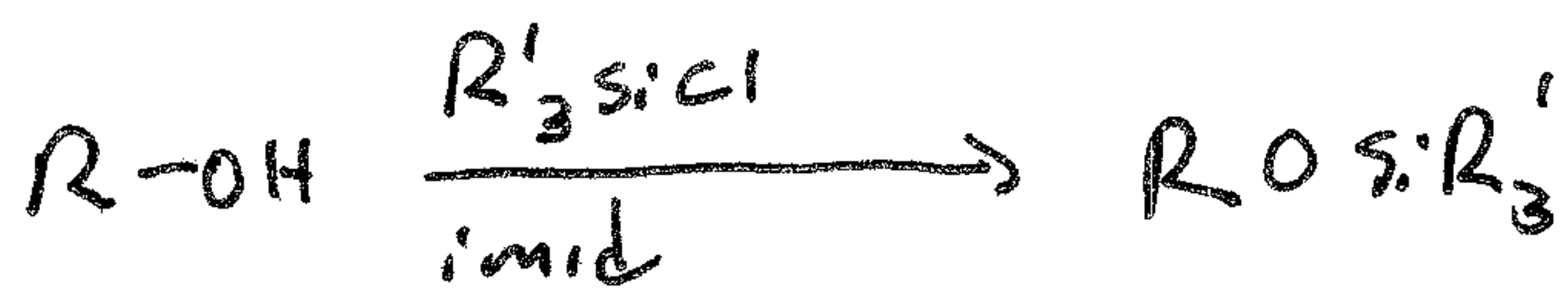
Make sure you have access to this book.

Rott Protecting Groups

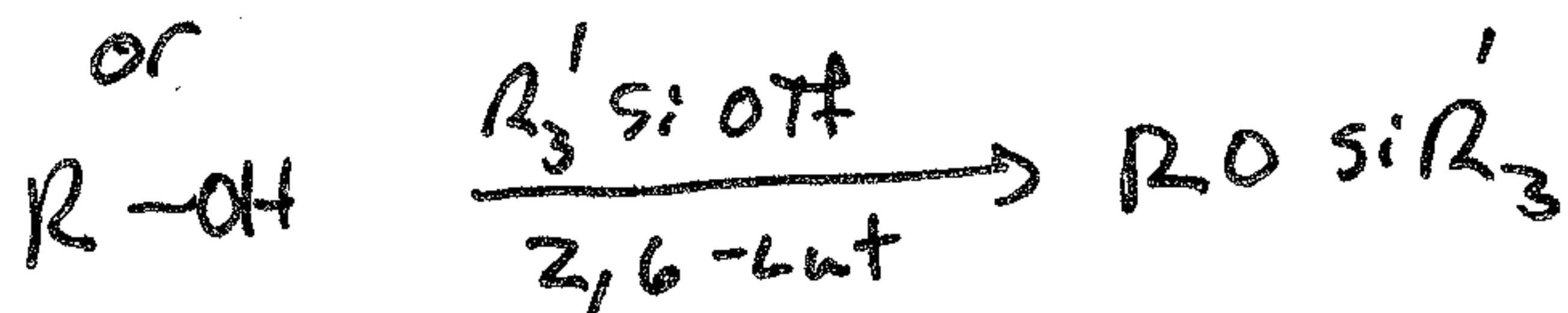


most common.

Silyl ether formation

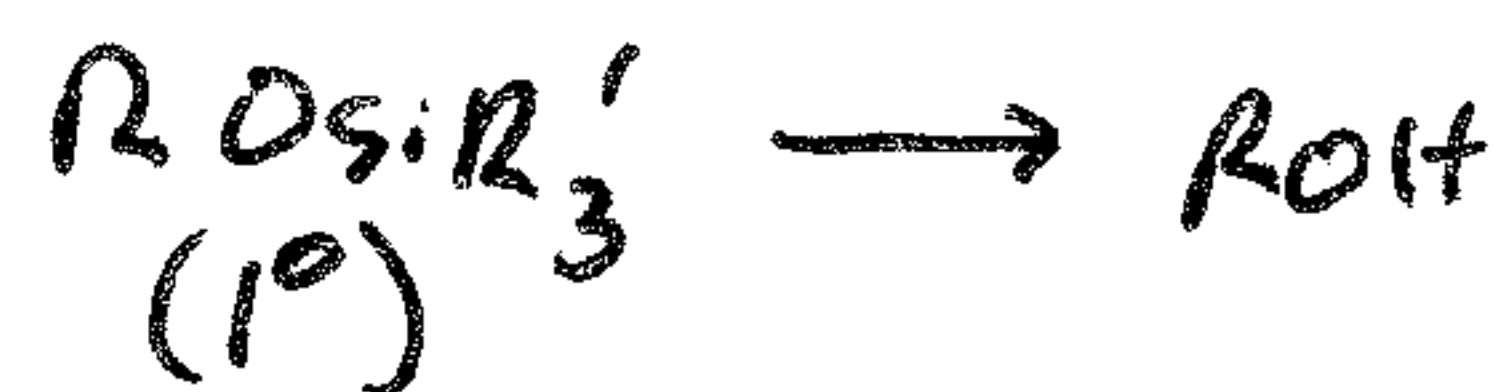


Corey JACS, 1972, 94, 6190



Corey, TL, 1981, 22, 3455

Stability



^-OH (5% NaOH/MeOH)

$T_{1/2}$

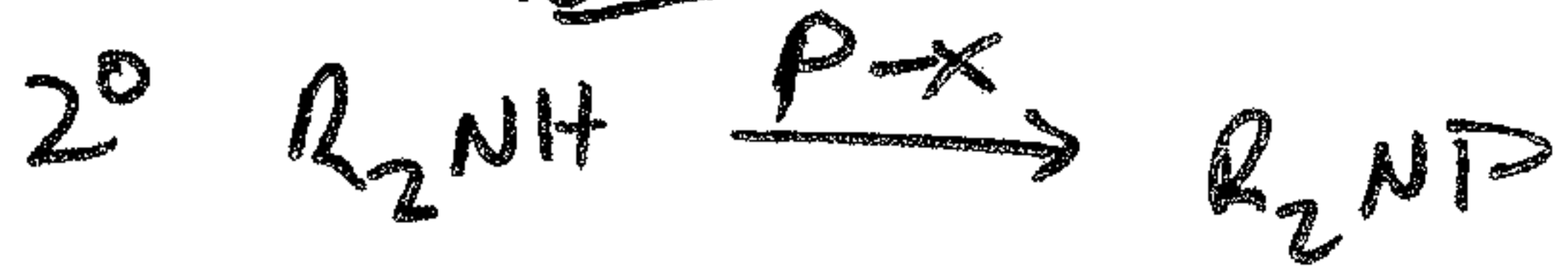
- TMS < TES < TBS < TIPS < TBDPs
- $\leq 1 \text{ min}$ 24h

HCl (1% HCl/MeOH)

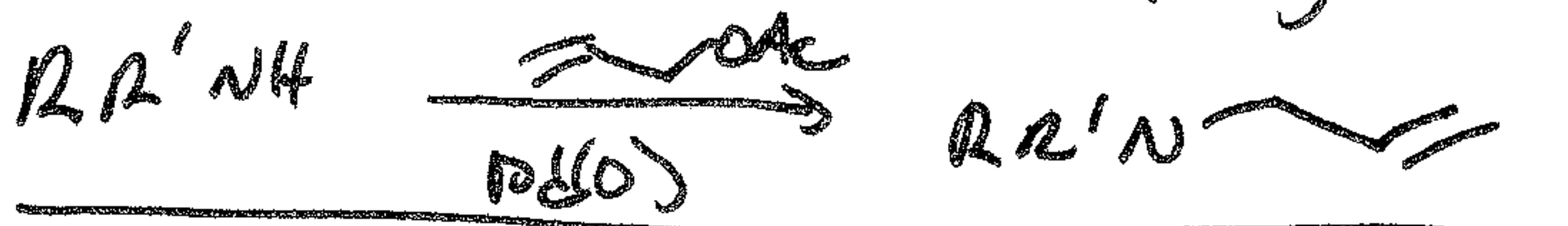
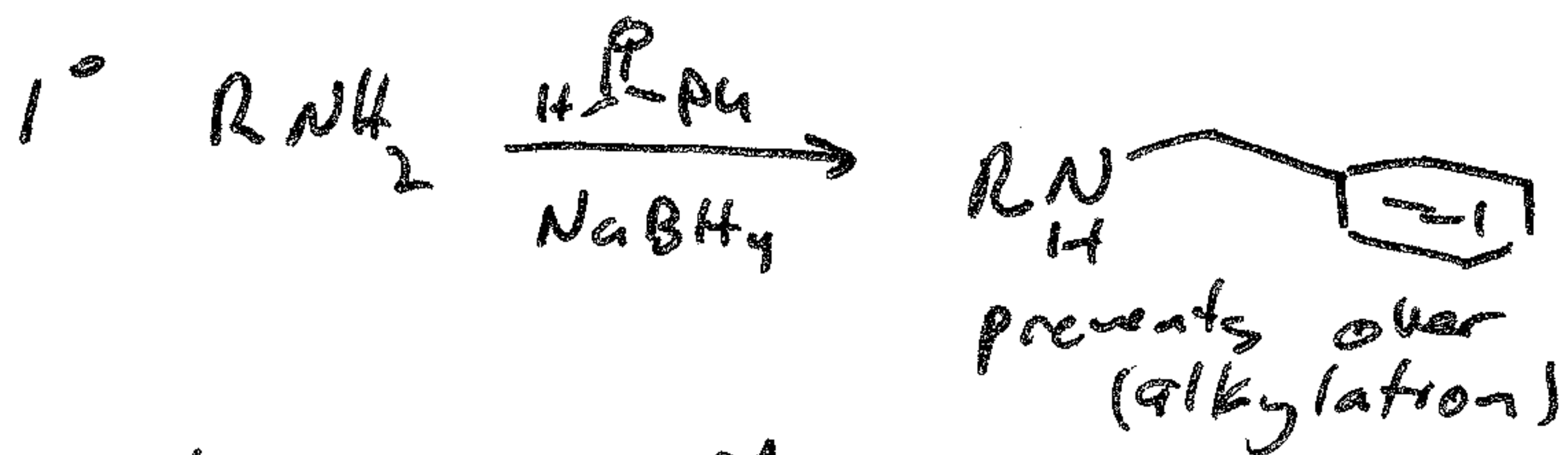
$T_{1/2}$

- TMS < TES < TBS < TIPS < TBDPs
- $< 1 \text{ min}$ 1 min 2h 24h

Alkyl formation (1° & 2° amines)

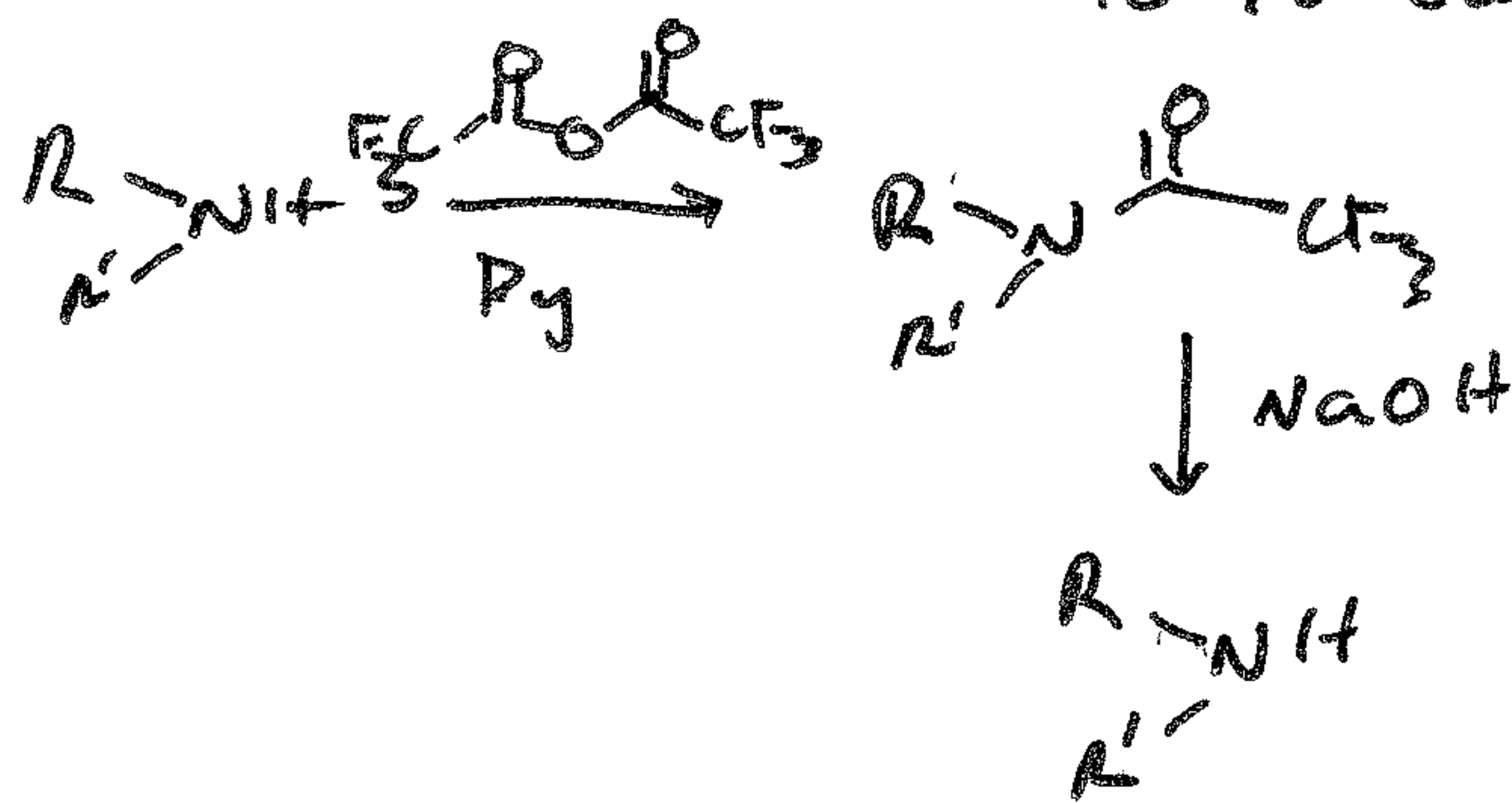
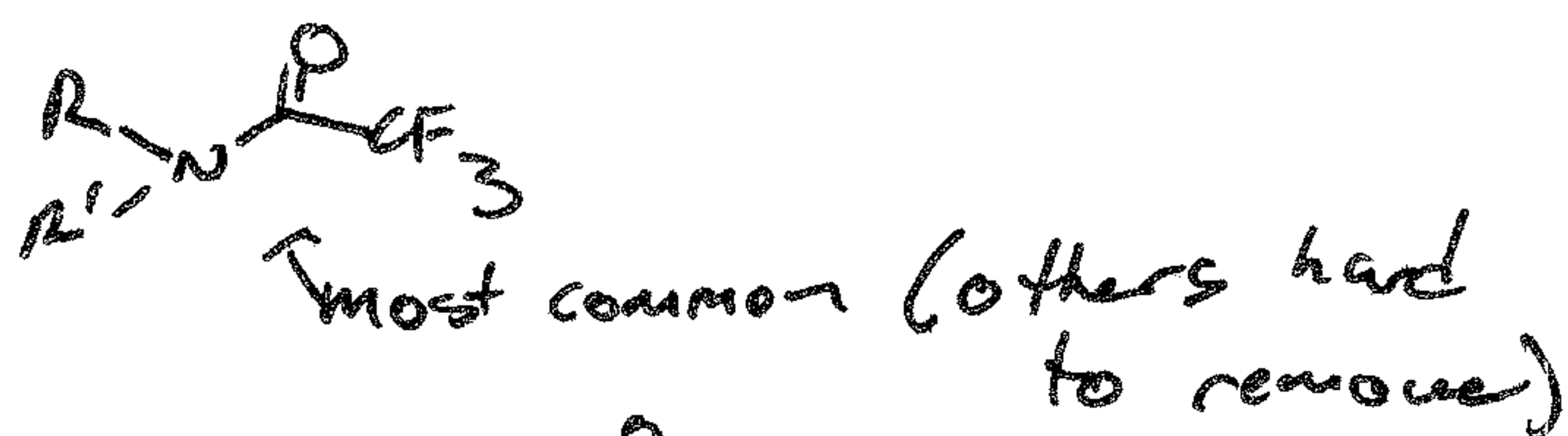


P = Bu, allyl, Tr

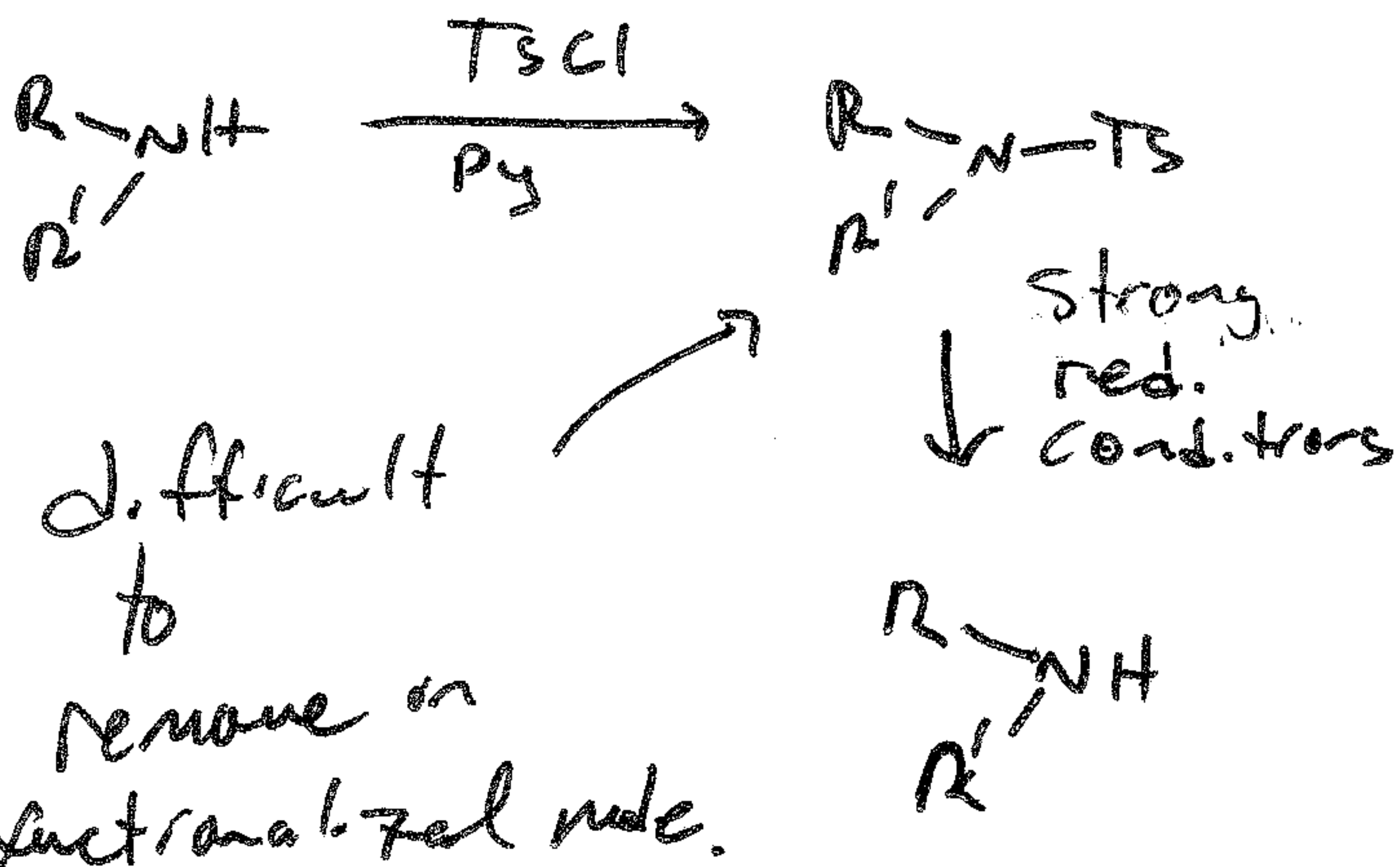
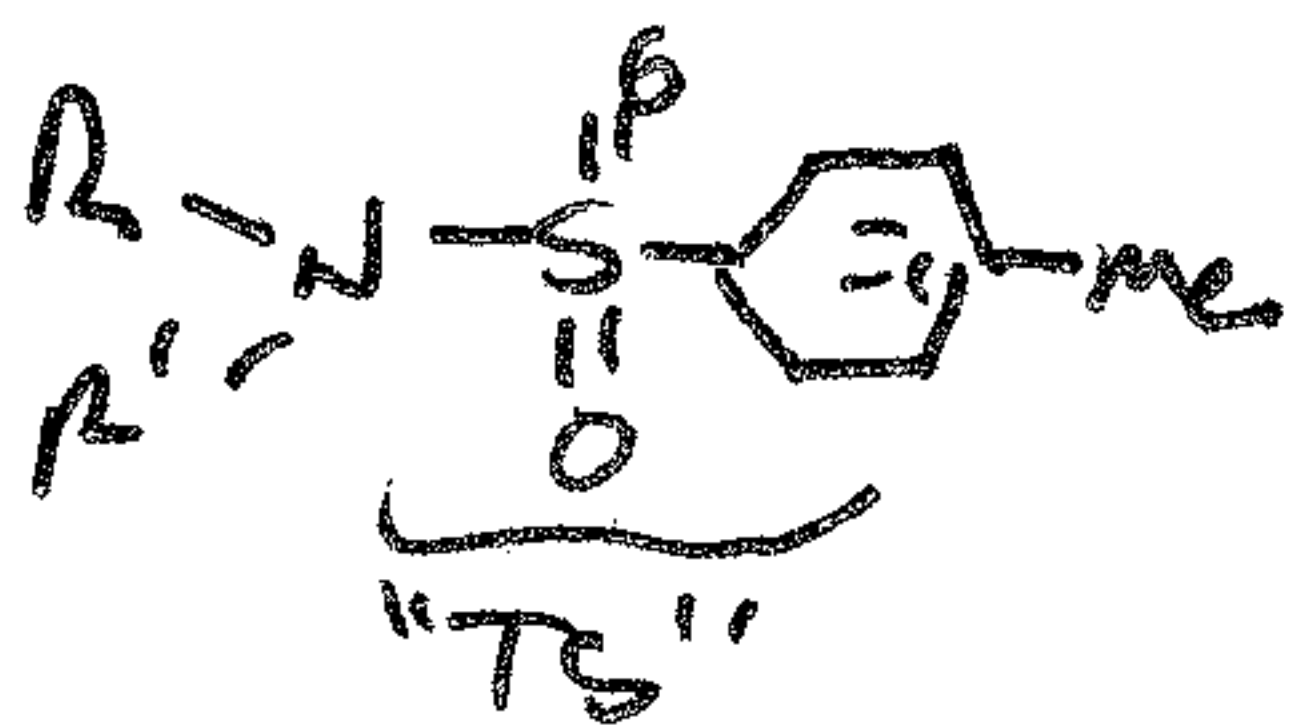


Removal as w/ other R.G.'s

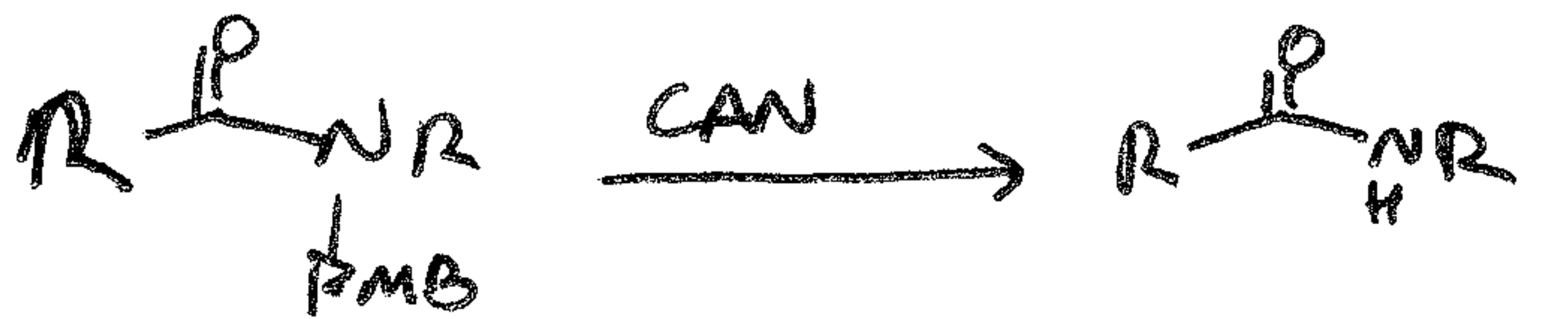
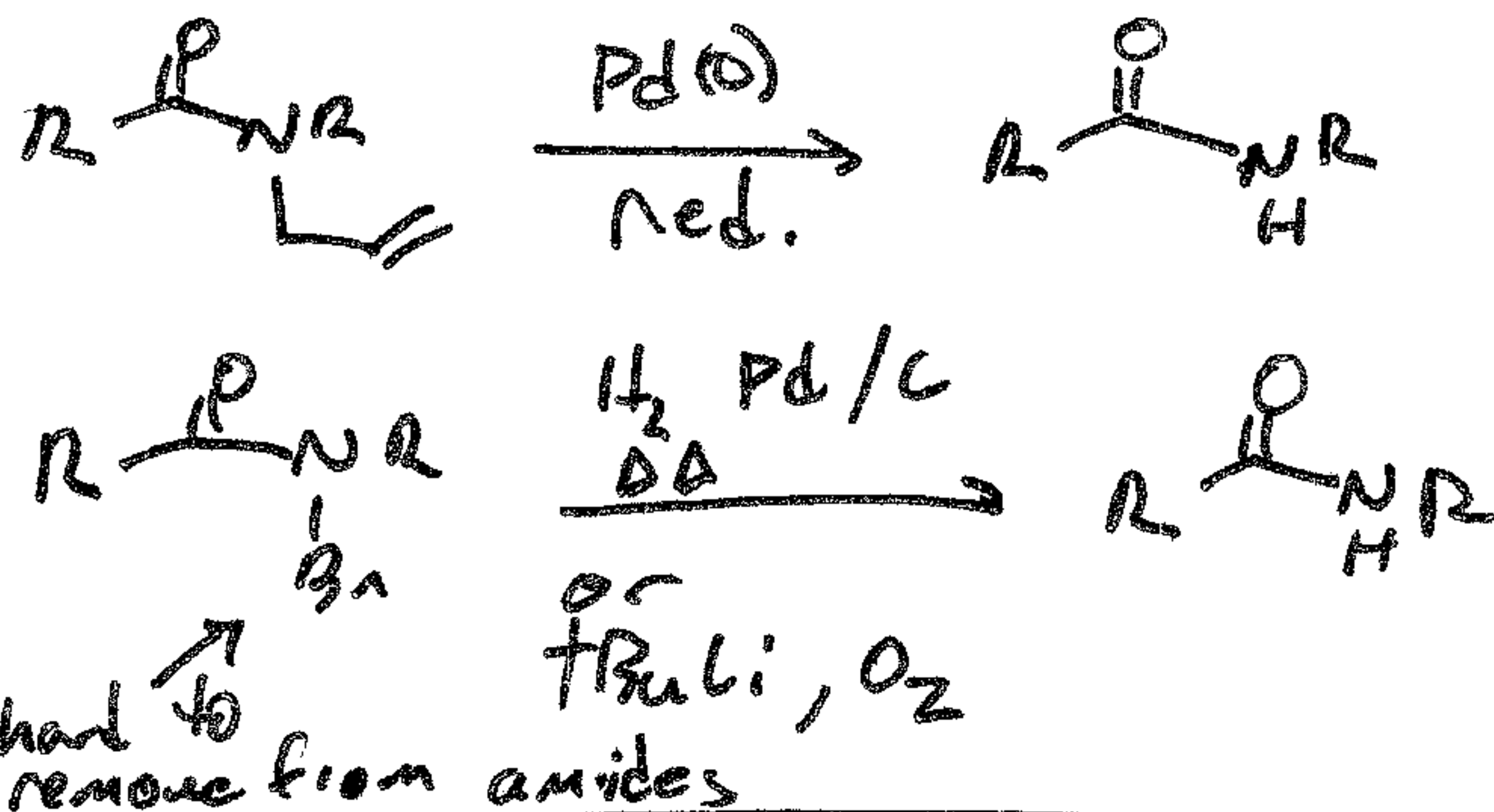
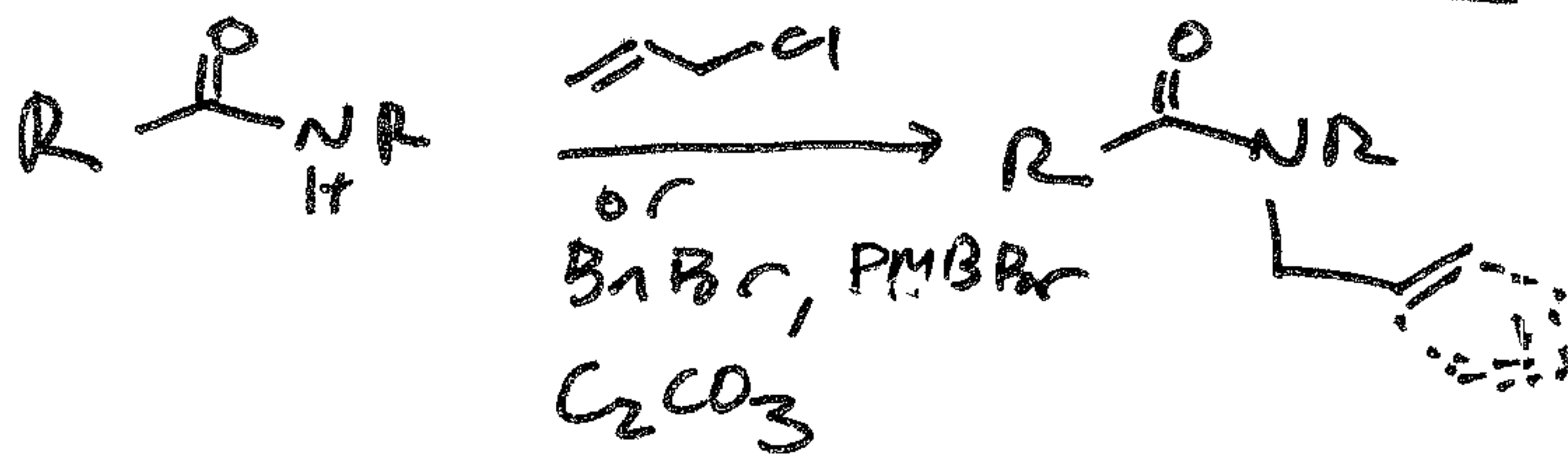
Amides (1° & 2° amines)



Sulfonates (1° & 2° amines)



P.G. for Amides | Not a lot of options



CAN = ceric ammonium nitrate = strong oxidant.

