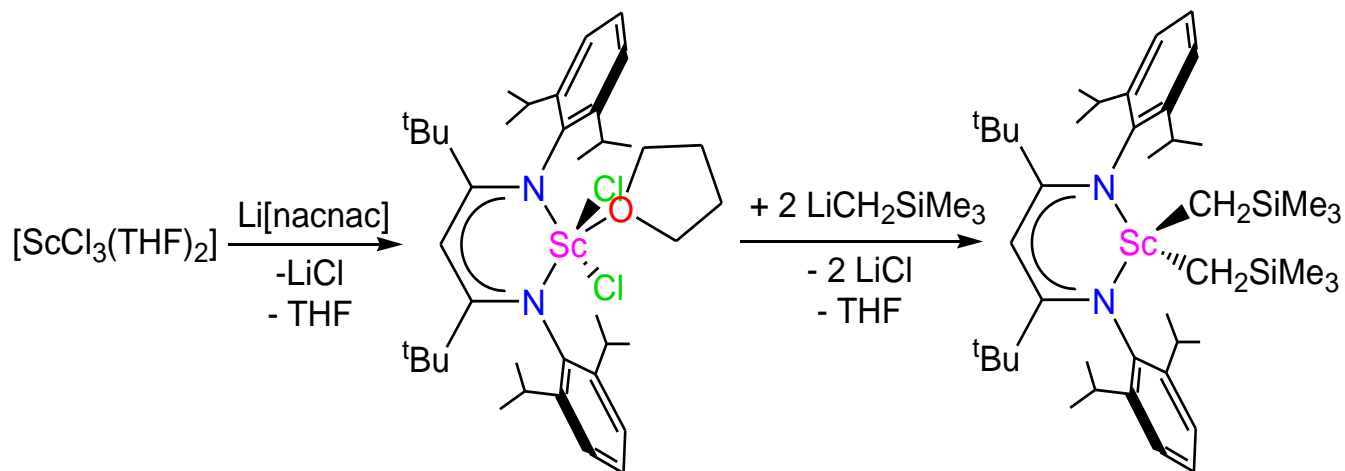


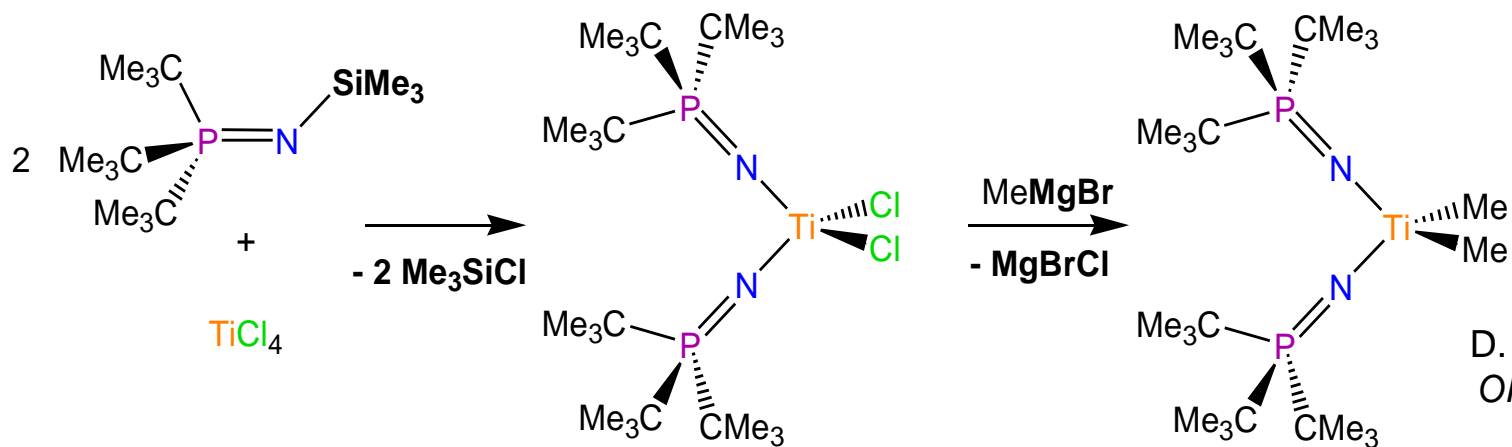
Ligand Attachment Protocols

Anionic ligands → Salt Metathesis



W. Piers + Hayes,
OM, **2001**, 2533.

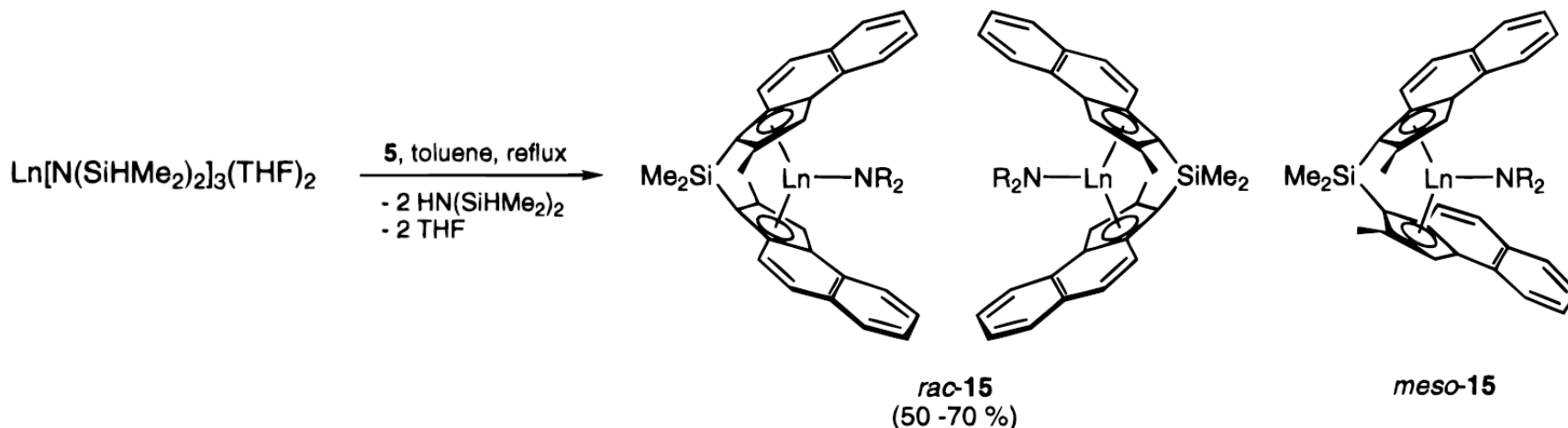
Anionic ligands → Salt Metathesis (MgX_2 elimination or Me_3SiCl elimination)



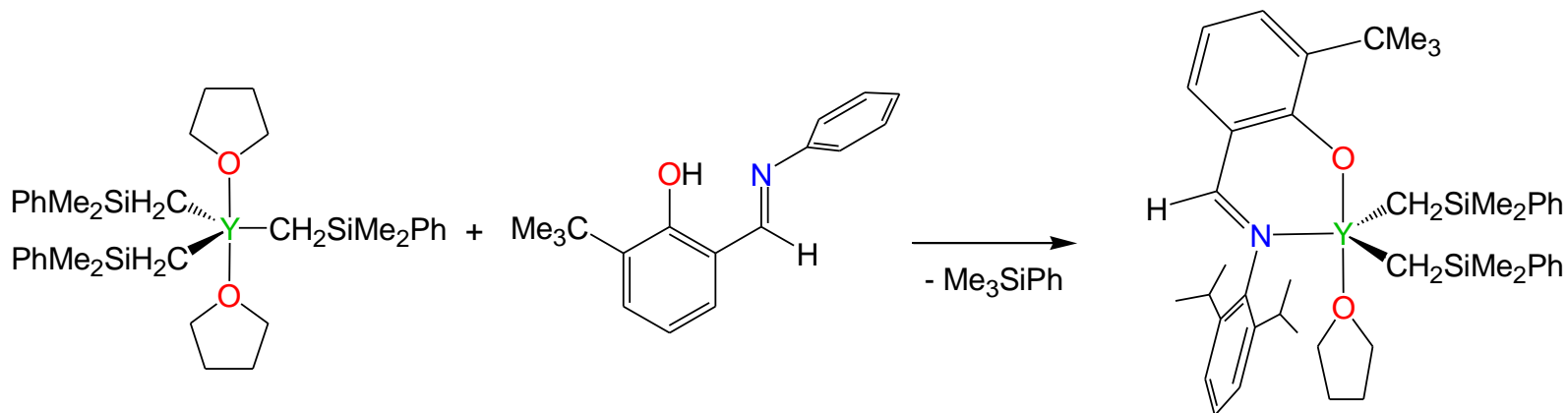
D. Stephan *et al.*,
OM, **1999**, 2046.

Ligand Attachment Protocols

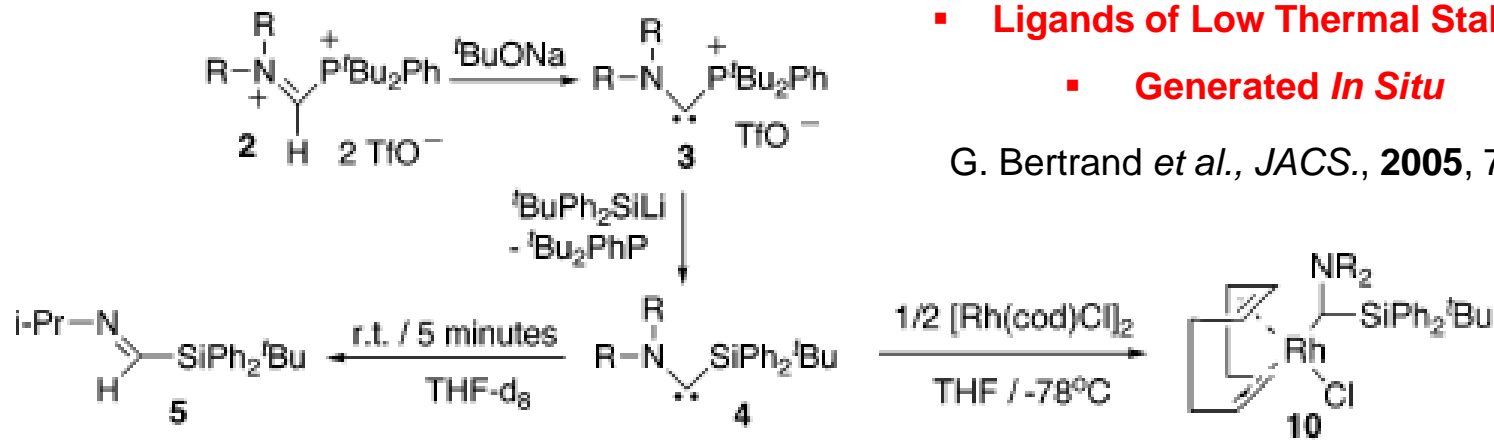
Anionic ligands → Amine elimination (direct access to metal amides)



Anionic ligands → Alkane elimination (direct access to metal alkyls)



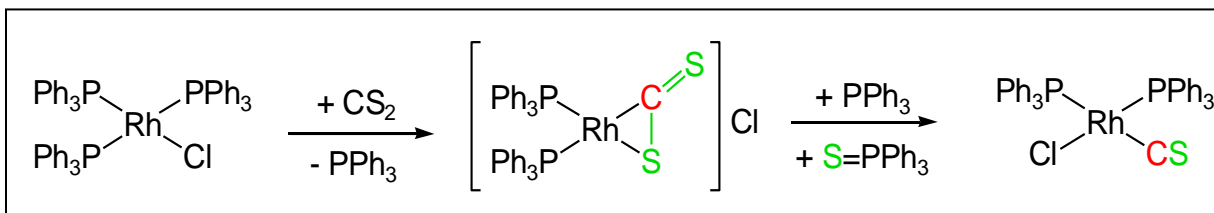
Ligand Attachment Protocols – Reactive Ligands



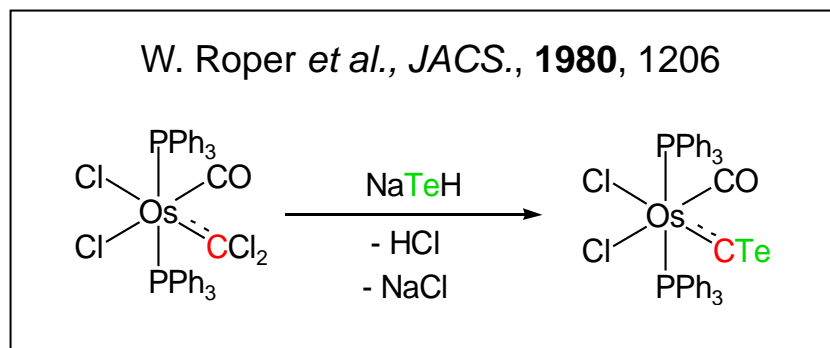
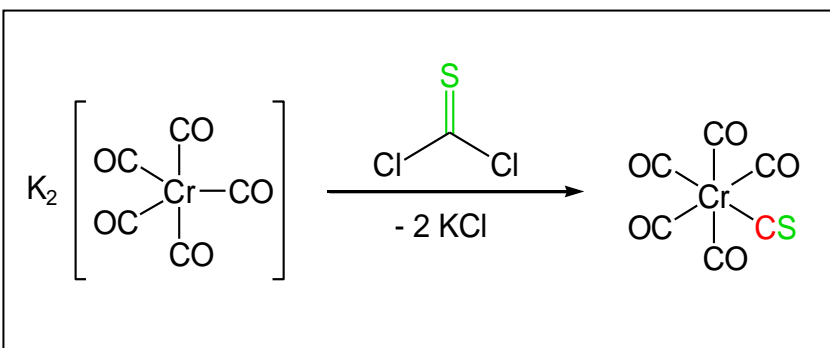
- **Ligands of Low Thermal Stability**

- **Generated *In Situ***

G. Bertrand *et al.*, *JACS.*, **2005**, 7312.

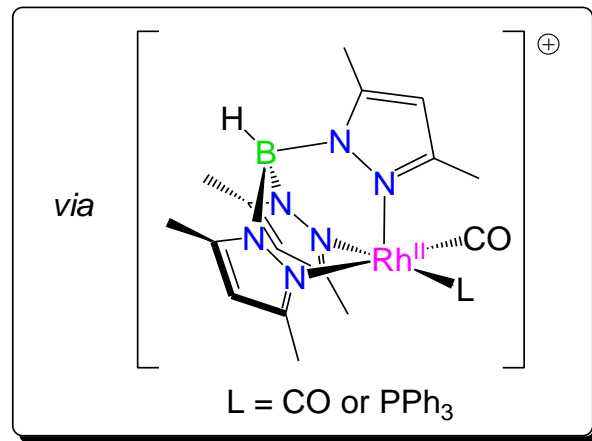
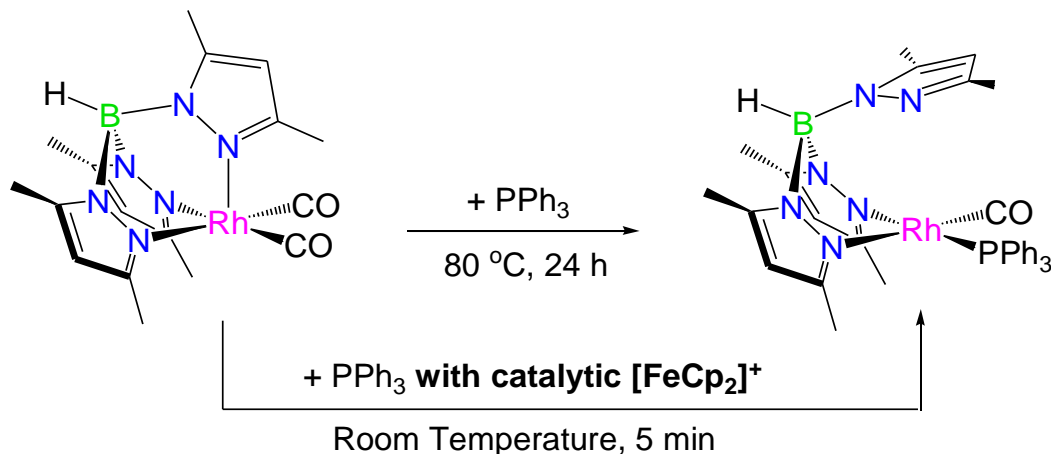


- **CS, CSe and CTe ligands (generated on the metal)**



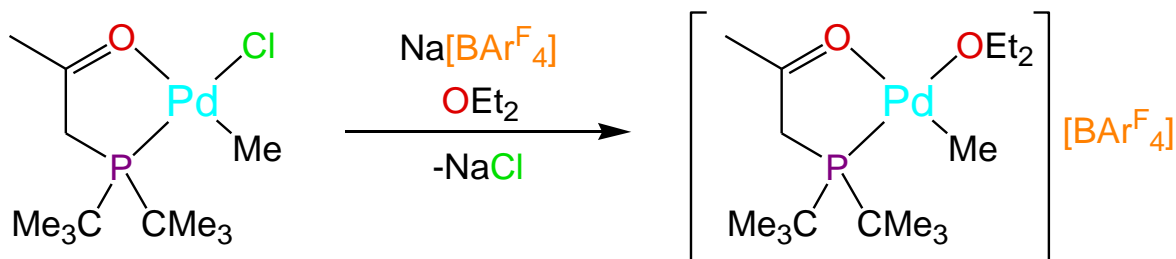
Ligand Attachment Protocols

- Redox catalyzed substitution is also an alternative method.



- Connelly + Emslie *et al.*, *Dalton Trans.*, **2001**, 670.

- To substitute a halide for a neutral ligand, halide abstraction agents MX (M = Na, K, Ag or Tl; X = BF₄, PF₆, B(C₆F₅)₄ or [B{C₆H₃(CF₃)₂-m}₄]) may be employed.



- Brookhart, *Organometallics*, **2002**, 2836. (Ethylene/Undecenone copolym.)

Notes:

- Ag⁺ is oxidising
- These X⁻ are examples of WCA ('Weakly-Coordinating Anions')