PB&J: Phosphorus and Boron at the Junction of Two π-Systems

Significance: The 1,1-alkenyloboration of alkynes is an unique route to large conjugated π-systems. Erker and co-workers demonstrate that the 1,1-alkenyloboration of diarylphosphino-enynes proceeds similarly to give hexatrienes 1. Upon thermolysis, two concurrent transformations occur: 6π-electrocyclic ring closure of the hexatriene moiety and nucleophilic aromatic substitution (SNAr) of a pentafluorophenyl group by the phosphine nucleophile to yield heterotricyclic products 2.

Comment: These reactions are a convenient synthetic route to new molecules containing vicinal P/B Lewis pairs. Thermolysis products are only reported for 1a and 1b. Would the thermolysis of 1c and 1d, which contain bulky (Mes)2P nucleophiles, result in electrocyclic ring closure without concurrent SNAr?