PB&J: Phosphorus and Boron at the Junction of Two $\pi$-Systems

Significance: The 1,1-alkenylation of alkynes is an unique route to large conjugated $\pi$-systems. Erker and co-workers demonstrate that the 1,1-alkenylation of diarylphosphino-enynes proceeds similarly to give hexatrienes 1. Upon thermolysis, two concurrent transformations occur: 6$\pi$-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)$_2$P nucleophiles, result in electrocyclic ring closure without concurrent SNAr?