

methylbenzyl ether in the presence of the bpy-Fe(0) catalyst gives a mixture of isomerized and coupled products, the components of which can be fully resolved by capillary gas chromatography (eq 3, R = H, Ar = *p*-CH₃C₆H₄). Analysis of the reaction mixture after short reaction times shows that the benzyl and *p*-methylbenzyl groups are incorporated into each of the observed products with identical facility. Repeating the above experiment with an equimolar mixture of 1,1-dideuterio-2-propenyl benzyl ether and allyl *p*-methylbenzyl ether allows us to determine the overall isotope effects (k_H/k_D) for the isomerization and the coupling reactions by measuring the relative abundances of benzyl and *p*-methylbenzyl products, **3a:3b** and **1a:1b**, respectively (eq 3, R = ²H, Ar = *p*-CH₃C₆H₄).¹¹ Carrying out such a competition experiment through approximately two turnovers of the "bpy-Fe(0)" catalyst shows an isotope effect for the isomerization process k_H/k_D of 1.5 ± 0.1 , a value which is consistent with literature data.¹⁵ In contrast, the observed ene product distribution (**1b:1a**) gives a ratio k_H/k_D of 1.0 ± 0.1 for the coupling process.¹⁶

The data demonstrate that coupling and isomerization do not involve rate-determining formation of a common intermediate through hydrogen transfer. The lack of a kinetic isotope effect fully supports pathway D as the

mechanism of coupling. A mechanism similar to that outlined in Scheme I can be written to account for the formation of allylic ether product **2**. In this latter case, one role of the bulky dppe ligand might be to direct oxidative coupling toward the more substituted carbon of the allylic ether so as to form the least sterically congested metal carbon σ -bond. Further studies on the utility of these novel cross-coupling reactions are in progress.

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Registry No. **1**, 104693-23-4; **1b**, 104693-28-9; **2**, 104693-24-5; *cis*-**3**, 32426-80-5; *trans*-**3**, 32426-79-2; *cis*-**3b**, 104693-26-7; *trans*-**3b**, 104693-27-8; (CH₃)₂C=C(CH₃)CH₂CH₂CH=CHCH₂OCH₂Ph, 104693-25-6; *p*-CH₃C₆H₄CH₂OCH₂CH=CH₂, 42463-79-6; D₂, 7782-39-0; Fe(acac)₃, 14024-18-1; bpy-Fe(0)-diene, 104714-94-5; dppe-Fe(0)-diene, 104693-29-0; dmpe-Fe(0)-diene, 104693-30-3; benzyl 3-butenyl ether, 70388-33-9; *cis*-crotyl benzyl ether, 27299-31-6; *Trans*-crotyl benzyl ether, 27299-30-5; 2,3-dimethyl-1,3-butadiene, 513-81-5; allyl benzyl ether, 14593-43-2; allyl benzoate, 583-04-0.

(15) Chrisope, D. R.; Beak, P. *J. Am. Chem. Soc.* **1986**, *108*, 334-335 and references herein.

(16) Similar kinetic isotope effects are observed with the "ligand free" Fe(0) catalyst (see ref 7).

Additions and Corrections

Serge Attali, Françoise Dahan, and René Mathieu*: Reaction of [P(C₆H₅)₄][Fe₂(CO)₆(μ -CO)(μ -CHCH₂)] with [RhCl(CO)₂]₂. Synthesis of a Triiron-Dirhodium Cluster Anion Containing a CH₃C=C=CH₂ Allenyl Ligand with an Unusual μ_4 - η^3 Mode of Bonding, [P(C₆H₅)₄][Fe₃Rh₂(CO)₁₀(μ -CO)₃(μ_4 - η^3 -CH₃C=C=CH₂)]. **1986**, *5*, 1376.

The correct title is published above. The title was incorrectly published as "Reaction of [P(C₆H₅)₄][Fe₂(CO)₆(μ -CO)(μ -CHCH₂)] with [RhCl(CO)₂]₂. Synthesis of a Triiron-Dirhodium Cluster Anion Containing a CH₃C=C=CH₂ Triiron-Dirhodium Ligand with an Unusual μ_4 - η^3 Mode of Bonding, [P(C₆H₅)₄][Fe₃Rh₂(CO)₁₀(μ -CO)₃(μ_4 - η^3 -CH₃C=C=CH₂)]".

D. Ewan Smith and Alan J. Welch*: Indenylmetallacarboranes. 1. The 18-Valence-Electron Complex 3-(η^5 -C₉H₇)-3,1,2-CoC₂B₉H₁₁ and Comparative Molecular Structures of This Complex and 3-(η^5 -C₅H₅)-3,1,2-CoC₂B₉H₁₁. **1986**, *5*, 760.

On p 761 we erroneously described 3-(η^5 -C₅H₅)-3,1,2-FeC₂B₉H₁₁ as the first reported metallacarborane. In fact the ions Fe(C₂B₉H₁₁)₂²⁻ and Fe(C₂B₉H₁₁)₂⁻ predate the Cp complex by several months (Hawthorne, M. F.; Young, D. C.; Wegner, P. A. *J. Am. Chem. Soc.* **1965**, *87*, 1818).