suggests that the metal center is more sterically constrained in **1a**, as would be expected.[7] However, the yttrium–$C(C_5Me_5)$ average distances, 2.66 (2) Å in **1a** and 2.67 (1) Å in **1b**, are indistinguishable.

The terminal Y–Cl bond length in **1b**, 2.575 (3) Å, is very close to the terminal Y–Cl bond distances in $(C_5Me_5)_2YCl(THF)$ (**2**), 2.579 (3) Å,[31] and $(C_5Me_5)_2Y(\mu\text{-}Cl)YCl(C_5Me_5)_2$ (**3**), 2.579 (6) Å.[25] The Y–(μ-Cl) distances in **1a** and **1b**, 2.650 (4) and 2.620 (3) Å, are longer than the terminal lengths, as expected. However, these distances are closer to the 2.640 (5) Å bridging bond length for the seven-coordinate metal center in **3**, $(C_5Me_5)_2\mathit{Y}(\mu\text{-}\mathit{Cl})YCl(C_5Me_5)_2$, than the 2.776 (5) Å length for the analogous eight-coordinate yttrium in **3**, $(C_5Me_5)_2Y(\mu\text{-}\mathit{Cl})\mathit{Y}Cl(C_5Me_5)_2$.

The bridging lithium–chloride bond distance in **1a**, 2.374 (16) Å, is near the normal range of 2.39–2.41 Å found in $(C_5Me_5)_2Yb(\mu\text{-}Cl)_2Li(OEt_2)_2$ (**4**),[7] $(C_5H_4SiMe_3)_2Yb(\mu\text{-}Cl)_2Li(OEt_2)_2$ (**5**),[7] and $[C_5H_3(SiMe_3)_2]_2Nd(\mu\text{-}Cl)_2Li(THF)_2$ (**6**).[6] The 2.297 (16) Å Li–Cl distance in **1b**, in which only one anionic ligand is attached to lithium, is somewhat shorter. The average Li–O(THF) distances are not markedly different in **1a** and **1b**, 1.90 (1) and 1.91 (1) Å, respectively, and are similar to the 1.93 (3) Å distance in **6**.[7]

Discussion

The cocrystallization of both disolvated and trisolvated $(C_5Me_5)_2YCl_2Li(THF)_x$ complexes is unusual. Generally, crystallization of a complex results in the most energetically preferred geometry available for the prevailing set of crystallization conditions. The crystallization of a complex in two different forms in the same unit cell suggests that the factors leading to the formation of these two species are very similar. A classic case of this phenomenon is the X-ray crystal structure of $[Cr(H_2NCH_2CH_2NH_2)_3][Ni(CN)_5](H_2O)_{1.5}$, in which both square pyramidal and trigonal bipyramidal $[Ni(CN)_5]^{3-}$ units are found in the same unit cell.[42] The similarity in energies of these two different five-coordinate geometries is well established.[43]

In this case, the observation that both di- and trisolvated complexes can cocrystallize suggests that both of these forms are readily available to $(C_5Me_5)_2LnZ_2M(ether)_x$ complexes. Given the differences in reactivity between terminal and bridging ligands in organolanthanide complexes,[44] this could have significant implications in reaction chemistry if both forms are available in solution. Specifically, the presence of a small amount of coordinating solvent, which might be expected to reduce reactivity by occupying a vacant coordination site on a lanthanide metal center, may actually enhance reactivity by generating a terminal ligand via a $(C_5R_5)_2Ln(\mu\text{-}Z)_2M(ether)_2$ to $(C_5R_5)_2LnZ(\mu\text{-}Z)M(ether)_3$ process. In such a case, a small amount of an ether in an arene or alkane solvent could change the reactivity from that found in a rigorously ether-free solvent and could lead to variations in reactivity depending on solvent purity.

Acknowledgment. We thank the Division of Chemical Sciences, Office of Basic Energy Sciences, Department of Energy, for support of this research. Funds for the purchase of the Siemens R3m/V diffractometer system were made available from the National Science Foundation under Grant CHE-85-14495.

Supplementary Material Available: ORTEP diagrams showing top views of **1a** and **1b**, tables of complete crystallographic data, positional parameters, bond distances and angles, and thermal parameters (18 pages); a listing of structural factor amplitudes (23 pages). Ordering information is given on any current masthead page.

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Additions and Corrections

1989, Volume 28

Carl R. Steffan, Andreja Bakac,* and James H. Espenson*: Quenching of the Doublet Excited State of Tris(polypyridine)chromium(III) Ions by Oxalate Ions: An Example of Irreversible Electron Transfer.

Page 2995. The half-reaction in eq 14, with $E°_{14}$ = 0.60 V, should read

$$CO_2 + CO_2^{\bullet -} + e^- = C_2O_4^{2-} \qquad (14)$$

Since K for $CO_2 + CO_2^{\bullet -} \rightleftharpoons C_2O_4^{\bullet -}$ is unknown, the value of $E°$ for $C_2O_4^{\bullet -} + e^- = C_2O_4^{2-}$ cannot be rigorously calculated from known data, but an estimate of 1.7 V has been made (Neshvad, G.; Hoffman, M. Z. *J. Phys. Chem.* **1989**, *93*, 2445. See also: Hoffman, M. Z.; Prasad, D. R. *J. Photochem. Photobiol., A* **1990**, *54*, 197).—James H. Espenson