1067-17-212 **Earl J. Taft*** (etaft@math.rutgers.edu), Department of Mathematics, Rutgers University, Piscataway, NJ 08854, and **Zhifeng Hao** (mazfhao@scut.edu.cn), Department of Mathematical Science, South China University of Technology, Guangzhou, 510640. *The Lie product in the continuous Lie dual of the Witt algebra.*

Let k be a field of characteristic zero. The simple Lie algebra W_1=Der k[x], the one-sided Witt algebra, has a basis $e_i = x^{(i+1)}$d/dx for i at least -1). For each i, the wedge of e_0 and e_i satisfies the classical Yang-Baxter equation, giving W_1 the structure of a coboundary triangular Lie bialgebra $(W_1)^{(i)}$. The continuous Lie dual of $(W_1)^{(i)}$ is also a Lie bialgebra, and has been identified with the space of k-linearly recursive sequences by W. Nichols[J. Pure Appl. Alg. 68(1990), 359-364]. Let f=(f_n) and g=(g_n) be linearly recursive sequences in the continuous linear dual of $(W_1)^{(i)}$, [f,g] their Lie product. For each n, the n-th coordinate of [f,g] has been described in terms of the coordinates of f and of g[E. J. Taft, J. Pure Appl. Alg. 87(1993), 301-312], but it was an open problem to give a recursive relation satisfied by [f,g] in terms of recursive relations satisfied by f and by g. We give such a relation here. Analogous'results hold for the two-sided Witt algebra W=Der k[x,$x^{(-1)}$]. (Received August 05, 2010)