

1030-16-46

Earl J Taft* (etaft@math.rutgers.edu), Department of Mathematics, Rutgers University,
Piscataway, NJ 08854. *Some combinatorial identities via Hopf algebra methods.*

Consider sequences f_n with coordinates in a field k of characteristic zero as dual to the polynomial bialgebra $k[x]$ with x group-like. C. Futia, E. Mueller and E. Taft considered sequences which satisfy a polynomial in the shift operator D with variable coefficients (D-finite sequences) and a topological bialgebra structure on them [Adv. Appl. Math. 28 (2002), 203-230], and obtained comultiplication formulas for the coproducts of $f_n = n!$ and $f_n = (n(n!))$. Here we obtain coproduct formulas for the sequences $f_n = \binom{n}{k}(n!)$, k fixed, $\binom{n}{k}$ the binomial coefficient. Applying to $k[x]$ tensor $k[x]$ yields quadratic combinatorial identities on the coordinates. [Joint with E. Mueller] (Received July 02, 2007)