# Simplification of Two Papers of Ferri, Faccio, and D'Amico

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In [1], the authors come up with a "new" numerical triangle, defined recursively by

$$a_{n,k} = a_{n-1,k} + \sum_{j=0}^{n-1} a_{j,k-1}, \quad n > k, \quad a_{n,n} = a_{n,0} = 1 \ . \tag{1}$$

Complicated expressions are derived for these numbers. However, they are not so "new" at all, since

$$a_{n,k} = \binom{n+k}{n-k} \ . \tag{2}$$

The second paper [2] is very similar; only the starting values are different: $a_{n,0} = n+1$.

This time we find

$$a_{n,k} = \binom{n+k+1}{n-k} \ . \tag{3}$$

The proofs (for instance by induction) are completely standard and therefore omitted.

## References

[1] G. Ferri, M. Faccio, and A. D'Amico. A new numerical triangle showing links with Fibonacci numbers. *The Fibonacci Quarterly*, 29:316–321, 1991.

[2] G. Ferri, M. Faccio, and A. D'Amico. Fibonacci numbers and ladder network impedance. *The Fibonacci Quarterly*, 30:62–67, 1992.

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