1127-05-253 **John Shareshian*** (shareshi@math.wustl.edu) and **Michelle L Wachs** (wachs@math.miami.edu). *Identities involving Eulerian numbers and binomial coefficients.*

Chung, Graham and Knuth proved in several ways the identity

$$\sum_{m=1}^{r+s} \binom{r+s}{m} a_{m,r-1} = \sum_{m=1}^{r+s} \binom{r+s}{m} a_{m,s-1}, \tag{1}$$

where $a_{m,j}$ is the number of permutations in S_m with j descents. A q-analogue of this identity was proved by Chung-Graham and by Han-Lin-Zeng. We proved a symmetric function identity, which upon stable principal specialization becomes the q-analogue just mentioned.

I will discuss various aspects of our work, including a geometric proof of our identity, γ-positivity of certain polynomials, and some other identities involving Eulerian numbers and binomial coefficients. (Received February 05, 2017)