Ball's identity

Yesterda I was in Loughborough, on XX-th integrable day. Don Zagier had lecture...His lecgture (about motives whas wondreful...

He wrote the identity: if $ad - bc = 1$ then

$$\frac{d^k}{dz^k}\left(f\left(\frac{az+b}{cz+d}\right)(cz+d)^{k-1}\right) = f^{[k]}\left(\frac{az+b}{cz+d}\right)(cz+d)^{-k-1}\,,\ \text{where } f^{[k]}(z) = \frac{d^k f(z)}{dz^k}\,.$$