ON THE POLYNOMIALS $R_\nu^{[\lambda]}(x)$, $N_\nu^{[\lambda]}(x)$ AND $M_\nu^{[\lambda]}(x)$.

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1. In a former paper[1] I have considered a class of polynomials, the poweroids, which may be defined by the relation

$$x^{\overline{\nu}|} = x\left(\frac{D}{\theta}\right)^{\nu} x^{\nu-1}, \tag{1}$$

θ denoting the operator

$$\theta = \varphi(D) = \sum_{\nu=1}^{\infty} k_\nu D^\nu \qquad (k_1 \neq 0). \tag{2}$$

The function $\varphi(t)$ is assumed to be analytical at the origin, and expansions in powers of D or any other theta-symbol are only permitted when the operation is applied to a polynomial.

A consideration of the form (1) leads to an examination of the polynomials

$$R_\nu^{[\lambda]}(x) = \left(\frac{D}{\theta}\right)^{\lambda} x^{\nu}, \tag{3}$$

where ν is the degree of the polynomial, while λ can be any real or complex number.

These polynomials contain as particular cases several polynomials which have already proved useful in analysis. Thus, the Nörlund polynomials $B_\nu^{[\lambda]}(x)$ and $\mathfrak{E}_\nu^{[\lambda]}(x)$, which again include the Bernoulli and Euler polynomials, are obtained for $\theta = \triangle$ and $\theta = \left(1 + \frac{\triangle}{2}\right) D$ respectively, see P. (105) and P. (118), and for $\theta = e^{\triangle} D$ the polynomial

[1] The Poweroid, an Extension of the Mathematical Notion of Power. Acta mathematica, Vol. 73 (1941), p. 333. This paper will be referred to below as »P».