If we now let $\psi^* = r^{*3}\psi'$, this equation becomes

$$\gamma^j\left(\frac{\partial}{\partial x^{j*}} - \frac{e}{c}\frac{i}{h}\phi_j^*\right)\psi' = -\mu r^2\psi'. \tag{18}$$

The factor $-r^2$ on the right-hand side of this equation shows that the Dirac equation for an electron is not invariant under inversions. However, if we set $\phi_j = 0$ and $\mu = 0$, then equation (15) is numerically invariant under inversions. This is done in the neutrino theory of light. Hence that theory has the same invariance properties as the Maxwell theory. Veblen† and Dirac‡ have both shown that there is no nonsingular analog of the Dirac equation which is conformally invariant. The result given here shows how the invariance fails. We have given the detailed treatment of the behavior of the Dirac equation under the four-dimensional inversion; the three-dimensional inversion may be treated by restricting the range of indices in (7), (8), and (12) to 1, 2, 3 and adding the equation $x^{4*} = x^4$ to (7).

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NOTE ON DEGREE OF TRIGONOMETRIC AND POLYNOMIAL APPROXIMATION TO AN ANALYTIC FUNCTION§

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1. **Introduction.** Well known results|| relate the continuity properties of a real function $f(x)$ to the degree of approximation to $f(x)$ by trigonometric sums and by polynomials in x. In more recent years further results¶ have related the continuity properties of a complex function $f(z)$ to the degree of approximation to $f(z)$ by polynomials in the complex variable z. The object of the present note is to obtain some new results lying on the border line of these two general fields of research.

To be more explicit, if $f(z)$ is analytic in the annulus $\rho > |z| > 1/\rho < 1$, the degree of convergence on $|z| = 1$ of the Laurent development of

† O. Veblen, *A conformal wave equation*, Proceedings of the National Academy of Sciences, vol. 21 (1935), p. 484.

‡ P. A. M. Dirac, *Wave equations in conformal space*, Annals of Mathematics, (2), vol. 37 (1936), p. 429.

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|| Due especially to S. Bernstein, Jackson, Lebesgue, Montel, and de la Vallée Poussin.

¶ Due especially to J. Curtiss, Sewell, and Walsh.