$$K(x, y) = \begin{cases} f_s(y) \text{ if } x^1 = s < 1 \text{ and } \int_0^\eta f_s < \infty, \\ \prod_{j=1}^m 1/x^j \text{ if } x^1 \geqq 1 \text{ and } 0 < y^j < x^j \text{ for all } j, \\ 0 \text{ otherwise.} \end{cases}$$

Then K is regular on $\mathfrak{V}_m$; so $\mathfrak{K} \supset \mathfrak{V}_m$. If $f \in \mathfrak{W}_m - \mathfrak{V}_m$, either there is a $b > 0$ such that B is of finite measure and $\int_B f$ exists or not; if there is no such b, $|f|$ dominates a function with this property. Hence there is a function $f_0(y)$, zero if y is not in B, such that $\int_B f_0$ exists and $\int_B f_0 f$ does not. Then there is an $s < 1$ such that f_s dominates f_0 but $\int_0^\eta f_s < \infty$. Hence there is an x such that $U_x(f)$ does not exist; so $\mathfrak{V}_m \supset \mathfrak{K}$.

For $m \geqq 2$ this construction can be modified to give a kernel with $\mathfrak{R}_m$ as domain of regularity.

Brown University

BOUNDED SELF-ADJOINT OPERATORS AND THE PROBLEM OF MOMENTS*

B. A. LENGYEL

It is known that there exists a close connection between the theory of moments and Jacobi matrices on one side, and the theory of self-adjoint operators in Hilbert space on the other. This connection has been thoroughly investigated by Stone in the tenth chapter of his textbook on Hilbert space.† The solution of both the moment problem and the spectral resolution of self-adjoint operators relies on the possibility of representing a class of analytic functions with positive imaginary parts in the upper half-plane by *Stieltjes* integrals of the form

$$\int_{-\infty}^{+\infty} \frac{d\rho(\lambda)}{\lambda - z}.$$

However, the spectral resolution requires the representation of more general functions than those involved in the solution of the problem of moments. The *bounded* self-adjoint operators do not, and I wish to show that the spectral theorem for *bounded* operators can be deduced immediately from the well known theorems concerning the problem of moments. Let H be a bounded self-adjoint operator, f an element of the Hilbert space, $R_z = (H - zI)^{-1}$ the resolvent of H. It

* Presented to the Society, September 6, 1938.

† M. H. Stone, *Linear Transformations in Hilbert Space and their Applications to Analysis*, American Mathematical Society Colloquium Publications, vol. 15, New York, 1932. The notations of this textbook are used throughout the present paper.