

$z-w$ , take the limit as  $w$  approaches  $z$ , and find  $\mu'(z) = -\lambda(2z)/\lambda^4(z)$ , the correspondent of  $\varphi'(z) = -\sigma(2z)/\sigma^4(z)$ .

If we wish to interpret this partial isomorphism in terms of Lucas'  $U_n, V_n$ , where  $n$  is an integer, we may so do in the special case (cf. §1) in which  $q=1$ . The derivatives  $\lambda'(z)$ ,  $\mu'(z)$ ,  $\dots$  are then replaced by their equivalents in terms of  $U(z), V(z)$  with  $z$  finally replaced by  $n$ .

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## AN INEQUALITY FOR DEFINITE HERMITIAN DETERMINANTS\*

BY E. F. BECKENBACH

The proof of M. Ragnar Frisch's theorem,† *The absolute value of a symmetric, definite determinant of real elements is at most equal to the product of the absolute values of the elements of the principal diagonal*, may be generalized to establish the following theorem of which the above is clearly a special case: *The absolute value of a definite Hermitian determinant is at most equal to the product of the absolute values of the elements of the principal diagonal.*

An Hermitian determinant

$$(1) \quad H \equiv \begin{vmatrix} h_{11} & \cdots & h_{1n} \\ \cdots & \cdots & \cdots \\ h_{n1} & \cdots & h_{nn} \end{vmatrix}$$

is a determinant such that

$$h_{rs} = \bar{h}_{sr}, \quad (r, s = 1, 2, \dots, n),$$

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\* Presented to the Society, February 23, 1929.

† *Sur le théorème des déterminants de M. Hadamard*, Comptes Rendus, vol. 185 (1927), p. 124. This is not a new theorem; see Bachmann, *Die Arithmetik der Quadratischen Formen*, 1923, pp. 250–251. It is more the method of proof than the result that makes Frisch's paper of interest. Though Bachmann does not give the generalized proof of the present paper, his proof holds equally for it.