rem that (p/q being irreducible)

$$p = p_n + \epsilon p_{n-1}, \qquad q = q_n + \epsilon q_{n-1}, \qquad \epsilon = \pm 1,$$

for the convergents to x are all $[e/o]$ or $[o/e]$. Write $X=[a_{n+1}, a_{n+2}, \cdots]$, $Y=[a_n, a_{n-1}, \cdots, a_2]$. Then if $n \geqq 2$,

$$\theta = \frac{(Y+\epsilon)(X-\epsilon)}{XY+1} = 1 - \frac{2-\epsilon(X-Y)}{XY+1} > 1 - \frac{2+X+Y}{XY+1},$$

$$\begin{aligned} XY + 1 - E(2+X+Y) &= (X-E)(Y-E) - E^2 - 2E + 1 \\ &> (E+1)^2 - E^2 - 2E + 1 > 0, \end{aligned}$$

$$\theta > 1 - 1/E.$$

If $n=1$, then $p=p_1+1$, $q=q_1=1$, $\theta=1-[0, a_2, \cdots]>1-1/E$.

RAFFLES COLLEGE, SINGAPORE

MEASURABILITY AND DISTRIBUTIVITY IN THE THEORY OF LATTICES[1]

M. F. SMILEY

Introduction. Garrett Birkhoff[2] derived the following self-dual symmetric condition that a metric lattice be distributive:

$$\begin{aligned} 2[\mu(a \cup b \cup c) - \mu(a \cap b \cap c)] &= \mu(a \cup b) - \mu(a \cap b) + \mu(a \cup c) \\ &\quad - \mu(a \cap c) + \mu(b \cup c) - \mu(b \cap c). \end{aligned} \tag{1}$$

In a previous note[3] the author introduced and discussed a generalization of Carathéodory's notion of measurability[4] with respect to an outer measure function μ which applies to arbitrary lattices L. The μ-measurable elements form a subset $L(\mu)$ consisting of those elements $a \in L$ which satisfy

$$\mu(a \cup b) + \mu(a \cap b) = \mu(a) + \mu(b) \tag{2}$$

for every $b \in L$. Closure properties of $L(\mu)$ were investigated. In par-

[1] Presented to the Society, January 1, 1941. The author wishes to express his gratitude to the referee for his valuable suggestions and comments.

[2] *Lattice Theory*, American Mathematical Society Colloquium Publications, vol. 25, p. 81. We shall adopt the notation and terminology of this work and shall indicate specific references to it by B.

[3] *A note on measure functions in a lattice*, this Bulletin, vol. 46 (1940), pp. 239–241. We shall indicate references to this paper by M.

[4] *Vorlesungen über Reelle Funktionen*, 2d edition, p. 246.