$$\left| \int_\alpha^\beta d[f(x)g(x)] - \int_\alpha^\beta g(x)df(x) - \int_\alpha^\beta f(x)dg(x) \right|$$

is less than $\epsilon$ multiplied by the total variation of $f(x)$ plus the total variation of $g(x)$. Hence this expression must be equal to 0 and therefore the formula for integration by parts is valid under the above hypotheses.

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# A SET OF POSTULATES FOR BOOLEAN ALGEBRA

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1. *A New Set of Postulates.* In the development of a Boolean Algebra, Boole's Law of Development

$$f(x) = f(1)x + f(0)x',$$

stands out as a basic relationship. This law is so all embracing that the question naturally arises, if this is set as a postulate, what postulates in addition to it are needed to define a Boolean Algebra? Using as undefined a class $K$ and the Sheffer stroke function, we shall show that, in addition to a form of Boole's Law, only two "trivial" postulates are required.

POSTULATES.*

I. *$K$ contains at least two elements.*

II. *If $a$ and $b$ are elements of $K$, then $a/b$ is an element of $K$.*

*Definitions*: $a' = a/a$, $a \cdot b = a'/b'$, and $a+b = (a/b)'$.

III. *There exists in $K$ a unique element* 0, *such that, if $f(x)$ is any function definable in terms of/and elements of $K$, we have, for any $x$ in $K$,*

$$f(x) = f(0')x + f(0)x'.$$

THEOREM 1. $0'' = 0$.

*Proof*: From III, and the preceding definitions, we have

$$x = 0'x + 0x' = [(0'x)/(0x')]'; \tag{1}$$

in particular

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* This is the smallest set of postulates for a Boolean Algebra yet given.