RELATIVE VALUE 13.9.1980

The assignment of absolute values is practically difficult. How do we measure the absolute and overall value of a poem or of a rose? It is easier to measure value differences among objects of the same kind.--which is what we do, e.g., when grading students. Therefore we shall elucidate the notion of the value difference $d_R(a,b)$ between objects a and b in the respect R. More precisely, we shall assume that such differences, for a fixed R, form a linear continuum:

POSTULATE Let K be a class of objects and R a respect (property) in which the Ks are evaluated. Further, let $d_R: K \times K \rightarrow \mathbb{R}$ be a real valued function. Then, for every given K and R, and any three objects a , b,c of kind K,

(i) $d_R(a,a) = 0$

(ii) $d_R(a,b) = d_R(b,a)$

(iii) $d_R(a,b) + d_R(b,c) = d_R(a,c)$.

In other words, $\langle K, d_R \rangle$ is a (one dimensional) metric space.

If absolute values are available, they can be introduced (though not defined in terms of d_R) in various ways, e.g.

$$d(a,b) = |V(a) - V(b)| \qquad \text{and} \qquad d_R(a,b) = \log |V(a)/V(b)|,$$

However, the V's cannot be inferred from a knowledge of the d's.