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Definition of the Neutrosophic Probability Measure FLORENTIN SMARANDACHE, University of New Mexico — The neutrosophic probability measure is a mapping:

$$NP : X \to [0,1]^3$$

where X is a neutrosophic sample space (i.e. X is a sample space that contains some indeterminacy),

$$NP\left(A\right) = \left(ch\left(A\right), ch\left(indeterm_A\right), ch\left(\overline{A}\right)\right),$$

where *ch(A)* is the chance that event A occurs,*ch(indeterm*$_A$*)* is the indeterminate chance related to occurrence of A, and $ch\left(\overline{A}\right)$is the chance that A does not occur, such that: $NP\left(X\right) = (\alpha, \beta, \gamma)$, where $^{-}0 \leq \quad \alpha \quad + \quad \beta \quad + \quad \gamma \quad \leq 3^{+}$, and $^{-}0 \leq \quad \alpha, \beta, \gamma \leq 1^{+}$.

$$NP\left(A \cup B\right) = \left(ch\left(A\right) + ch\left(B\right), ch\left(indeterm_{A \cup B}\right), ch\left(\overline{A \cup B}\right)\right)$$

for $A \cap B = \Phi$, and for infinite unions

$$NP\left(\bigcup_{n \geq 0} A_n\right) = \left(\sum_{n \geq 0} ch\left(A_n\right), ch\left(indeterm\right) = 0.10, ch\left(\bigcup_{n \geq} \overline{A_n}\right)\right)$$

for A_n disjoint two by two that lie in the neutrosophic sigma-algebra of events.

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