Abstract Submitted
for the OSS16 Meeting of
The American Physical Society

Degree of Dependence and Independence of Neutrosophic Logic Components Applied in Physics FLORENTIN SMARANDACHE, University of New Mexico — Neutrosophic Logic is a general framework for unification of many existing logics, and its components T (truth), I (indeterminacy), F (falsehood) are standard or non-standard real subsets of $]^{-}0, 1^{+}[$ with not necessarily any connection between them. For single valued neutrosophic logic, the sum of the components (T+I+F) is: $0 \leq$ T+I+F ≤ 3 when all three components are independent; $0 \leq$ T+I+F ≤ 2 when two components are dependent, while the third one is independent from them; $0 \leq$ T+I+F ≤ 1 when all three components are dependent. When three or two of the components T, I, F are independent, one leaves room for incomplete information (sum <1), paraconsistent and contradictory information (sum >1), or complete information (sum = 1). If all three components T, I, F are dependent, then similarly one leaves room for incomplete information (sum <1), or complete information (sum = 1). The dependent components are tied together. Three sources that provide information on T, I, and F respectively are independent if they do not communicate with each other and to not influence each other. The sum of two components x and y in general is: $0 \leq$ x+y $\leq 2 -$ d(x, y), where d(x, y) is the *degree of dependence* between x and y. Therefore 2 – d(x, y) is the *degree of independence* between x and y. But max{T+I+F}may also get any value in [1, 3]. For example, suppose that T and F are 30% dependent and 70% independent (hence T+F $\leq$ 2-0.3 = 1.7), while I and F are 60% dependent and 40% dependent (hence I+F $\leq$ 2-0.6 = 1.4). Then max{T+I+F}= 2.4 and occurs for T = 1, I = 0.7, F = 0.7. p.).

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Date submitted: 18 Mar 2016 Electronic form version 1.4