Refutation of Riemann’s definition of integrals for a cheating runner

Abstract: We evaluate six equations which are not tautologous. This refutes the conjecture of Riemann’s definition of integrals for a cheating runner before the integral is invoked to form a non tautologous fragment of the universal logic VŁ4.

We assume the method and apparatus of Meth8/VŁ4 with Tautology as the designated proof value, F as contradiction, N as truthity (non-contingency), and C as falsity (contingency). The 16-valued truth table is row-major and horizontal, or repeating fragments of 128-tables, sometimes with table counts, for more variables. (See ersatz-systems.com.)

Let for clarity, we usually distribute quantifiers onto each designated variable.

From: Akram, L. (2020). Riemann’s definition of integrals that a runner can cheat in order to win. vixra.org/pdf/2001.0360v1.pdf [Note: author’s claim of university affiliation is denied.]

Abstract: … [T]hanks to Riemann’s definition of integrals … a runner can cheat in order to win. …

1. Introduction: Let’s consider that a runner wants to run a race. The chronometer starts if and only if he overrides the starting line A. The chronometer stops if and only if he reaches the finishing line B. Let’s consider that A and B are two points of the line of real numbers. Consequently, the distance between A and B is the distance where the chronometer isn’t stopped, and thus the distance is the length L of the interval ]A,B].

We conclude that L=B-A and consequently the length L₁ of ]A,B[ is L₁=B-A-ε and the length L₂ of [A,B] is L₂=B-A+ε.

Remark 1.: We use standard interval notion of ( ) for ]. Because of ε as ε/2+ε/2 for (A,B) and [A,B], we apply ε/2 to (A,B] and [A,B).

In many fields, ε exists otherwise the intervals will be considered the same during the study with ε as follows: ∀A,B∈R with B>A we have: ∃M∈R\Q with M=Max{x/xε[A,B[} Hence: ∃ε∈R\Q with ε>0 and M+ε=B. M exists even if we can’t determine it exactly. It is the real number that is sticking to B at the left in the real number line.
And thus we have:
\[ B - \frac{C}{n} \leq B - \varepsilon < B \quad \forall n \in \mathbb{N} \setminus \{0\} \quad \text{and} \quad \forall C \in \mathbb{R} \setminus \{0; 1\} \]
So we can consider that \( \varepsilon = 0^* \). \hspace{1cm} (1.5.1)

**Remark 1.5.1:** We take the function Max as irrelevant, being indeterminate as stated.

\[
(((((((\#t\&\#u)\lt r)\&(u\gt t))>((\%w<(r\\q))&(w=(x\backslash x))))>((r-q)-(p\&(\%s<\#s))))>(p<(r\\q)))
>(((u=p)<(u-(v\y)))&(y<(z\\backslash (s@s))))&(v<(r\\((s@s)\&(\%s>\#s))))))
\]

\[
TTTN \ TNNF \ TTTN \ TNNF \ (3) \times 32
\]
\[
CCCF \ TNNF \ CCCF \ TNNF \ (1) \}
\]

**Remark 1.5.2:** We attempt to resuscitate the conjecture of Eq. 1.5.1 as rendered by taking it as the consequent to the number line schema in 1.1.2-1.4.2 as antecedent. \hspace{1cm} (1.6.1)

\[
((r-q)+(p\&(\%s<\#s)))>
(((((\#t\&\#u)\lt r)\&(u\gt t))>((\%w<(r\\q))&(w=(x\backslash x))))>((r-q)-(p\&(\%s<\#s))))>(p<(r\\q)))
>(((u=p)<(u-(v\y)))&(y<(z\\backslash (s@s))))&(v<(r\\((s@s)\&(\%s>\#s))))))
\]

\[
TTTT \ TTNC \ TTTT \ TTNC
\]
\[
CCCF \ TTNC \ CCCF \ TTNC
\]

Eqs. 1.1.2-1.6.2 are *not* tautologous. This refutes the conjecture of Riemann’s definition of integrals for a cheating runner before the integral is invoked.