Write-up for Future Problems.

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Contents

1 Abstract:

2 Several Observations and Theorems:

Theorem 2.1. *There exist an equation in a domain $\mathbb{D}$ from a non-zero $x, y, t \in \mathbb{R}$.:*

$$\mathcal{C} = \mathcal{N}(x) - y \cdot \int_n^p \mathcal{T}_n \cdot t \, dt,$$
$$\mathcal{C} - \mathcal{N}(x) = -y \cdot \int_n^p \mathcal{T}_n \cdot t \, dt,$$
$$\mathcal{C} \pm \frac{\mathcal{N}(x)}{y} = \int_n^p \mathcal{T}_n \cdot t \, dt, \; t \in \mathbb{R}.$$

That yields the identity for an integral of tensors $\mathcal{T}_n$, that would converge for $p \neq \pm\infty$, and yield a non-zero value.

Remark 2.2. An equation that requires $\mathcal{C}$ to be non-zero and convergent over a subset $\mathbb{D}$. Assuming $\mathcal{C} = \mathcal{C}_0 + \mathcal{C}_{\frac{1}{2}}$.:

$$\mathcal{C} = \mathcal{N}(x) - y \cdot \int_n^p \mathcal{T}_n \cdot t \, dt. \tag{1}$$

Then for $\mathcal{C}_0 \in \mathbb{D}$ and the well-defined and finite integral $\int_n^p \mathcal{T}_n \cdot t \, dt$ in the interval: $[n, p]$:

$$\mathcal{C}_0 = \frac{\mathcal{N}(x) - y \cdot \int_n^p \mathcal{T}_n \cdot t \, dt}{\pm \mathcal{C}_{\frac{1}{2}}}. \tag{2}$$

Where $\mathcal{C}_0$ is defined as a remainder of the right hand side, then for a non-zero $\mathcal{N}(x)$.:

$$\frac{\mathcal{C}_0}{\pm \mathcal{N}(x)} = \frac{-y \cdot \int_n^p \mathcal{T}_n \cdot t \, dt}{\pm \mathcal{C}_{\frac{1}{2}}}. \tag{3}$$

Remark 2.3. There exist a ratio $\forall x, y \in \mathbb{R}$, $\forall p \in \mathbb{N}$:

$$t_p = \frac{\Delta x_p}{y_p!}.$$

Consider a set of derivatives t_p below written as the following for $y_p \neq 0$ and $y_p! \neq 0$.:

$$\mathcal{S} = \{ \frac{\partial t_p}{\partial x} \frac{\Delta x_p}{y_p!}, \ldots \}, \; p \neq 0.$$

3 Several Definitions before several Proofs:

Going forward on this note, we shall note the following observations for our future work:

Definition 3.1. Let us have the definition of a normal, there exists z, and $\forall z, x, y \in \mathbb{R}$ and that there exists $\forall i, j, k \in \mathbb{R}$.

$$\mathcal{C} + ||z|| = \frac{\partial \, x}{\partial \, y} \cdot \mathcal{X}_{ijk} \cdot x. \tag{4}$$

There exist a normal that cancels at $z = \pi$ equating to $\frac{\partial \, x}{\partial \, y} \mathcal{X}_{ijk} \cdot x$ which when integrated is ought to be less than $||\frac{z}{x}||$. $\mathcal{C}$ is to be considered a complementary variable in $\mathbb{R}$.

Remark 3.2. $\mathcal{X}_{ijk}$ shall be a non-zero variable factoring x.

Remark 3.3. One may separately note the following for a analytical two dimensional space $\mathcal{D}$ for the function $\mathcal{T}$ and tensors $\mathcal{X}$:

$$\mathcal{T}_0 + \mathcal{R}_t = \iint_{\mathcal{D}} \mathcal{T}(\mathcal{X}_x, \mathcal{X}_y)_t \, dx \wedge dy. \tag{5}$$

Then by splitting $\mathcal{C}$:

$$\mathcal{T}_0 = \iint_{\mathcal{D}} \mathcal{T}(\mathcal{X}_x, \mathcal{X}_y)_t \, dx \wedge dy - \mathcal{R}_t. \tag{6}$$

A general use case for a strictly positive natural n and simulation variable x is for $n \neq 0$:

$$\mathcal{T}_{0+n} = \iint_{\mathcal{D}} \mathcal{T}(\mathcal{X}_{x+n}, \mathcal{X}_{y+n})_{t+x} \, dx \wedge dy - \mathcal{R}_{t+n}. \tag{7}$$

Or, more elegantly for $n \neq 0$:

$$\mathcal{T}_n = \iint_{\mathcal{D}} \mathcal{T}(\mathcal{X}_{x+n}, \mathcal{X}_{y+n})_{t+x} \, dx \wedge dy - \mathcal{R}_{t+n}. \tag{8}$$

Where $\forall x, y \in \mathbb{R}$.

Corollary 3.4. *$\mathcal{T}_n'$ is defined as per* Trans *being the transform operator of $t|x$:*

$$\mathcal{T}_n' = \mathrm{Trans}_{t|x}\Big(\iint_{\mathcal{D}} \mathcal{T}(\mathcal{X}_{x+n}, \mathcal{X}_{y+n})_{t+x} \, dx \wedge dy - \mathcal{R}_{t+n}\Big). \tag{9}$$

Per Remark 3.3 where $t|x$ is to be read as "time t over simulation variable x".

4 Conclusion:

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