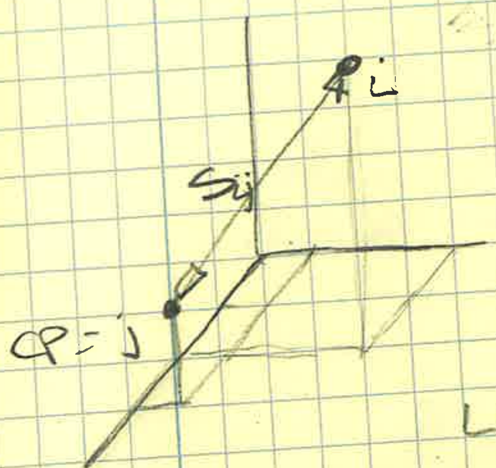
11/30/04



$$\hat{S}_{ij} = \left[(X_j - X_i)^2 + (Y_j - Y_i)^2 + (Z_j - Z_i)^2 \right]^{1/2}$$

$$\hat{S}_{ij} = t_{ij} C_i$$

$$\hat{t}_{ij} = \frac{1}{C_i} \left[\quad " \quad \right]^{1/2}$$

LINEARIZE

$$y = F(x_1, x_2) \Rightarrow y = y_0 + \underbrace{\left(\frac{\partial y}{\partial x_1}\right)_{x_0}}_{J_1} \Delta x_1 + \underbrace{\left(\frac{\partial y}{\partial x_2}\right)_{x_0}}_{J_2} \Delta x_2$$

$$\frac{dy}{dx} = \frac{dy}{du}\frac{du}{dx}$$

$(1+x^2)^{100}$

$u = 1+x^2$

$1000^{99}\ 2x$

$200x(1+x^2)^{99}$

$z = e^{xy} \quad x = 3t + 2u$

$\quad y = 4t - 2u$

$$\frac{\partial z}{\partial t} = z_x \frac{\partial x}{\partial t} + z_y \frac{\partial y}{\partial t}$$

$z_x = ye^{xy} \quad z_y = xe^{xy}$

$\frac{\partial x}{\partial t} = 3 \quad \frac{\partial y}{\partial t} = 4$

$$\frac{\partial z}{\partial t} = ye^{xy}3 + xe^{xy}4$$

$$(3y + 4x)e^{xy}$$

$$y = y_0 + J_1 \Delta x_1 + J_2 \Delta x_2$$

$$y = y_0 + J \Delta x$$

$$= y_0 + [J_1, J_2, J_3, J_4] \begin{bmatrix} \Delta x_1 \\ \Delta x_2 \\ \Delta x_3 \\ \Delta x_4 \end{bmatrix}$$

$$\frac{\partial t}{\partial x_i} = \frac{1}{C} \frac{1}{2[\quad]^{1/2}} 2(x_j - x_i)(-1)$$

$$= \frac{1}{C^2} \frac{C}{[\quad]^{1/2}} (x_j - x_i)$$

$$= \frac{1}{C^2} \frac{1}{t} (x_j - x_i)$$

$$\frac{\partial t}{\partial y_i} = \frac{1}{tC^2} (y_j - y_i)$$

$$\frac{\partial t}{\partial z_i} = \frac{1}{tC^2} (z_j - z_i)$$

$t \to \Delta$ OR $\frac{\partial t}{\partial x_i} = \frac{1}{C} \frac{1}{S} (x_j - x_i)$

$$\frac{\partial t}{\partial C_i} = -\frac{1}{C^2} [\quad]^{1/2} = -\frac{1}{C} \left[\frac{1}{C} [\quad]^{1/2} \right] = \frac{-1}{C} t$$

$$= \frac{-1}{C^2} S$$