

Kædereglen II

$$W = p q \sin(r)$$

$$f(p, q, r)$$

$$p = 2s + t, q = \frac{s+t}{s-t}, r = st$$

$$G(s, t)$$

$$\frac{\partial W}{\partial s} = \frac{\partial f \circ G}{\partial s} = \frac{\partial F}{\partial p} \frac{\partial p}{\partial s} + \frac{\partial F}{\partial q} \frac{\partial q}{\partial s} + \frac{\partial F}{\partial r} \frac{\partial r}{\partial s}$$

$$\frac{\partial F}{\partial p} = q \sin(r) \quad \frac{\partial F}{\partial q} = p \sin(r) \quad \frac{\partial F}{\partial r} = pq \cos(r)$$

$$\frac{\partial p}{\partial s} = 2 \quad \frac{\partial q}{\partial s} = 1 \quad \frac{\partial r}{\partial s} = t$$

$$(s, t) = (1, 0) \quad p = 2, q = 1, r = 0$$

$$\frac{\partial F}{\partial p} = 0 \quad \frac{\partial F}{\partial q} = 0 \quad \frac{\partial F}{\partial r} = 2 \cdot 1 \cdot 1 = 2$$

$$\frac{\partial W}{\partial s}(1, 0) = 2 \cdot t = 0$$

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$$W = p q \sin(r)$$

$$f(p, q, r)$$

$$p = 2s + t, q = \cancel{s+t}, r = st$$

$$G(s, t)$$

$$\left(\frac{\partial W}{\partial s} = \frac{\partial f \circ G}{\partial s} = \frac{\partial F}{\partial p} \frac{\partial p}{\partial s} + \frac{\partial F}{\partial q} \frac{\partial q}{\partial s} + \frac{\partial F}{\partial r} \frac{\partial r}{\partial s} \right)$$

$$\frac{\partial F}{\partial p} = q \sin(r) \quad \frac{\partial F}{\partial q} = p \sin(r) \quad \frac{\partial F}{\partial r} = pq \cos(r)$$

$$\frac{\partial p}{\partial s} = 2 \quad \frac{\partial q}{\partial s} = 1 \quad \left(\frac{\partial r}{\partial s} = t \right)$$

$$(s, t) = (1, 0) \quad p = 2, q = 1, \quad \left(r = 0 \right)$$

$$\frac{\partial F}{\partial p} = 0 \quad \frac{\partial F}{\partial q} = 0 \quad \frac{\partial F}{\partial r} = 2 \cdot 1 \cdot 1 = 2$$

$$\frac{\partial W}{\partial s}(1, 0) = 2 \cdot t = 0$$