# What are pushforwards?

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$\Phi: V=\mathbb{R}^n_{x_i} \to W=\mathbb{R}^m_{y_j}$ $\quad \Phi(0)=0$

$D \in \mathcal{D}_0 V \quad D=\sum a_I \partial_I$

$F_D = \mathcal{L}_V(D) = D e^{\sum x_i z_i} = \sum a_I z^I$

Likewise for $E \in \mathcal{D}_0(W) \quad E=\sum b_J \partial_J$

$g_E = \mathcal{L}_W(E) = E e^{\sum y_j w_j} = \sum b_J w^J$

Now $\mathcal{L}_W(\Phi_* D) = (\Phi_* D)(e^{\sum y_j w_j})$

$= D \cdot e^{\langle \Phi(x), w \rangle}$