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Maurer-Cartan form

Proposition: We have the multiplication map

$$G \times G \rightarrow G$$

and the identification

$$T(G \times G) \cong TG \times TG$$

Then under this identification, the derivative of the multiplication map is

$$\begin{aligned} \theta : TG \times TG &\rightarrow TG \\ (X_g, Y_h) &\mapsto (R_{h*}X_g + L_{g*}Y_h)_{gh} \end{aligned}$$

Definition. Maurer-Carter form

Let G be a Lie group. Then the left-invariant **Maurer-Carter form** is

$$\begin{aligned} \omega_G : TG &\rightarrow \mathfrak{g} \\ X_g &\mapsto L_{g^{-1}*}X_g \end{aligned}$$

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Definition. Maurer-Carter form

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For any $X, Y \in \text{Vec}(G)$

$$d\omega_G(X, Y) + [\omega_G(X), \omega(Y)] = 0$$

Current note has 0 direct children and 0 total descendants.

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 - [manifolds](#)
 - [ℝ-manifold_group_\(Lie groups\)](#)
 - [Maurer-Cartan form](#)

And it has 18 siblings.

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