The L_∞-algebra of the S-matrix

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Based on

- The L_∞-algebra of the S-matrix, ASA, [arXiv:1903.05643]
- TBA, ASA, Olaf Hohm, Chris Hull, Victor Lekeu [arXiv:19?xx.yyyyy]

L_∞-algebras: like Lie, but more arguments

- Lie: binary bracket $[T_{a_1}, T_{a_2}] = C^b_{a_1 a_2} T_b$, Jacobi identity;
- L_∞: **1-ary**, binary,… **n**-ary brackets, Jacobi identities:

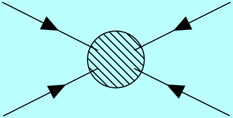
$$[T_{a_1}, T_{a_2}, \ldots T_{a_n}]_n \equiv C^b_{a_1 a_2 \ldots a_n} T_b\,; \qquad [[T_a]_1]_1 = 0\,, \text{and higher}$$

Every L_∞-algebra L has unique “minimal” part $L_{\min}$: $[-]_{1,L_{\min}} = 0$.

Claim (arXiv:1903.05643)

$$\langle 0|\mathrm{T}\phi(x_1)\phi(x_2)\phi(x_3)\phi(x_4)|0\rangle_{1\mathrm{PI}} \longleftrightarrow C^{a_4}_{a_1 a_2 a_3}$$

LSZ reduction! minimal



$\longleftrightarrow$ L_∞-algebra of the S-matrix

In progress: construction of EFTs using injective L_∞-morphisms $L_{\text{eff}} \to L$, inspired by [Sen 2016]; in particular, Double Field Theory.