

Gabriel Drummond-Cole's talk

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Adjoint functors?

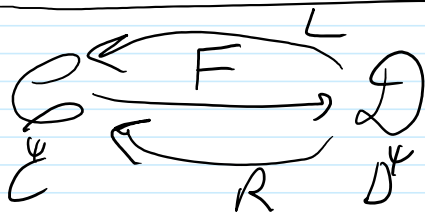
The operads \mathcal{O} & \mathcal{C} governing operads and co-operads?

"Every cyclic operad is an operad" \Leftrightarrow

\exists a forgetful $\mathcal{C} \rightarrow \mathcal{O}$

$\mathcal{O} \leftarrow \mathcal{C}$: \exists a left-adjoint (easy, like every universal construction)

\exists a right adjoint (hard and surprising)



$\mathcal{D}: \text{Hom}(FC, D) \quad \text{Hom}(D, FC)$

$\mathcal{C}: \text{Hom}(C, RD) \quad \text{Hom}(LD, C)$

E.g. 1. $\mathcal{C} = \text{Groups}$ $\mathcal{D} = \text{sets}$ S : forgetful.
 G A

$\text{Hom}_{\text{sets}}(A, SG) = \text{Hom}_{\text{grps}}(LA, G)$

\uparrow
 LA is the free grp generated by A

2. $\text{AssAlg} \xrightarrow{F} \text{LieAlg}$

$\text{Hom}_L(\mathfrak{g}, FA) \cong \text{Hom}(U(\mathfrak{g}), A)$

So U is a left adjoint of F .

①: The colored operad whose algebras are operads.

