

1) Let $f: B \rightarrow C$ and $g: A \rightarrow B$ be 2 A_∞ -morphisms
find a formula for the composition
($f \circ g$). (using trees)

and show that composition is associative

2) an A_∞ -morphism $f: A \rightarrow B$ is invertible if there is
a g such that $(f \circ g)_0 = (\mathbb{1}_B)_0$ and $(g \circ f)_0 = (\mathbb{1}_A)_0$
where $(\mathbb{1}_A)_0$ is the identity map and $(\mathbb{1}_A)_{>1} = 0$

Show that f is invertible as soon as f_1 is invertible

3) a) let $A = \mathbb{C} \oplus \mathbb{C} \oplus \mathbb{C}$ with $\deg \varepsilon, \rho = 1, 2$

find all A_∞ -structures on A such that 1 is a strict
identity. b) when are 2 A_∞ -structures A_∞ -isomorphic