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Sanath K Devalapurkar* (devalapurkarsanath@gmail.com), Apt. 47, Bon Anza, 20501, Anza Avenue, Torrance, CA 90503. *The K-theory of the Category of \mathcal{O} -module objects over an Algebra Object over an Unital Operad \mathcal{C}^\otimes* . Preliminary report.

Once one defines the K -theory (using Quillen's Q -construction) and the category $\text{Mod}_A(\mathcal{C})$ of A -module objects of an exact 1-category \mathcal{C} , it is natural to ask how $\text{Mod}_A(\Omega Q(\mathcal{C}))$ relates to $\Omega Q(\text{Mod}_A(\mathcal{C}))$. This is given by an inclusion $\text{Mod}_A(\Omega Q(\mathcal{C})) \supseteq \Omega Q(\text{Mod}_A(\mathcal{C}))$. It is then natural to ask if this generalizes to higher categories. For a higher-categorical analog of the Quillen Q -construction, we will show that

$$\Omega Q(\mathcal{M}\text{od}_A^\mathcal{O}(\mathcal{M}\text{od}_A^\mathcal{O}(\cdots(\mathcal{M}\text{od}_A^\mathcal{O}(\mathcal{C}^\otimes)^\otimes)\cdots)^\otimes)^\otimes) \simeq \Omega Q(\mathcal{M}\text{od}_A^\mathcal{O}(\mathcal{C}^\otimes)^\otimes)$$

is a subcategory of

$$\mathcal{M}\text{od}_A^\mathcal{O}(\mathcal{M}\text{od}_A^\mathcal{O}(\cdots(\mathcal{M}\text{od}_A^\mathcal{O}(\Omega Q(\mathcal{C}^\otimes))^\otimes)\cdots)^\otimes)^\otimes \simeq \mathcal{M}\text{od}_A^\mathcal{O}(\Omega Q(\mathcal{C}^\otimes))^\otimes \subseteq \Omega Q(\mathcal{C}^\otimes),$$

for \mathcal{C}^\otimes a unital (∞, n) -operad. (Received September 01, 2014)