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On the extended T-system of type $C_3$.

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Let $\mathfrak{g}$ be a complex simple Lie algebra of type $C_3$ and let $U_q\hat{\mathfrak{g}}$ denote the associated quantum affine algebra. A T-system is a family of 3-term recurrence relations in the Grothendieck ring of the category of finite-dimensional modules of $U_q\hat{\mathfrak{g}}$ corresponding to a family of short exact sequences of tensor products of Kirillov-Reshetikhin modules. Mukhin and Young [Selecta Math. (N.S.) 18 (2012), no. 3, 591–631; MR2960028] introduced extended T-systems which are certain generalizations of T-systems to other classes of finite-dimensional irreducible $U_q\hat{\mathfrak{g}}$-modules than Kirillov-Reshetikhin modules, as for example, the minimal affinizations.

In the paper under review the author considers the extended T-system of the affine quantum algebra $U_q\hat{\mathfrak{g}}$ of type $C_3$ which contains all minimal affinizations whose weights are of a certain form, and then he finds four sub-systems for this extended T-system. These sub-systems are used to compute the $q$-characters of the restrictions of these minimal affinizations of $U_q\hat{\mathfrak{g}}$ to $U_q\mathfrak{g}$ and to obtain some conjectural decomposition formulas for these restrictions.