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Darlayne Addabbo* (addabbo2@illinois.edu), Champaign, IL 61820. *Q-systems and Generalizations in Representation Theory.*

We will define tau-functions given as matrix elements for the action of \widehat{GL}_2 on two-component fermionic Fock space and explain how to show that they satisfy an $A_{\infty/2}$ Q -system. Since Q -systems are of interest in many areas of mathematics, for example in representation theory and in combinatorics, it is interesting to ask what sort of discrete relations are satisfied by analogous tau-functions given as matrix elements for the action of \widehat{GL}_3 on three-component fermionic Fock space. We will define these new tau-functions and describe the system of equations that they satisfy. We will also discuss progress we have made in finding applications for this new system of equations. If time permits, generalizations will be discussed. (Joint with Maarten Bergvelt.) (Received September 13, 2016)