1077-VG-806   **Delong Meng*** (`delong13@mit.edu`), 290 Massachusetts Ave, Cambridge, MA 02139. *Learning in three multi-player auctions.*

We show that the first price-, second price-, and all pay auction all converge to their respective Bayesian-Nash equilibria under the fictitious play model given by Ellison and Fudenberg.

The basic idea of our model is as follows. A finite number of players participate in an infinitely repeated auction in which an identical object is sold at every stage (in discrete time). A player's valuation of the object changes in each stage, but it follows a fixed probability distribution. In every stage a player assumes that her opponents follow a weighted mean of their past strategies, and she evaluates her expected chance of winning accordingly, which enables her to calculate the bid that maximizes her expected payoff. The process repeats ad infinitum.

Our result provides a theoretical complement to the empirical study done by Kagel et al., who observed Nash equilibria in the first- and second price auction in their experiments.

(Note: this project is done under the supervision of Prof. Glenn Ellison from MIT's Department of Economics.) (Received September 13, 2011)