

Title: Cognitive and Emotional Theory of Mind in the Ultimatum Game and the Dictator Game

Toshio Yamagishi

Graduate School for International Corporate Strategy, Hitotsubashi University

Abstract

Strategic choices require cognitive ability to read other people's responses to own action, and to be committed to one's goal. Steinbais et al (2011) found that the players who change their proposal between the ultimatum game and the dictator game have thicker DLPFC than others, implying that strong cognitive control exerted by DLPFC makes them more strategically than others. We found the same relationship between game behavior in the UG and the DG and DLPFC thickness using data from 470 participants. An interesting finding is that the thickness of the DLPFC was not related with the choices in the UG – almost everyone proposed more-or-less fair offers. On the other hand, we found a negative relationship between the amount participants gave to their recipient in the DG and the gray matter volume of the DLPFC. It seems that cognitive control is needed more to stick with one's own self-interest than in anticipating others' responses and adjusting own behavior to it. Pursuit of self-interest is something that requires self-control. These results suggest that heuristic strategy of cooperation in social exchange is replaced by deliberate decision strategy among those with strong cognitive control in situations where the use of heuristic decision strategy is inappropriate.