

Roy Allen [mentor, Willemien Kets]

I am interested in applying network theory to games of incomplete information. Previous work has explored how easily a new action can spread to entirely replace an old action in a network, even when the new action is less desirable or when only a small group of players start to play the next action. Working with Willemien Kets, I hope to show that analogous results follow when viewing a game of incomplete information in a network setting. In particular, I would like to see how a low probability event can spread through players' beliefs to impact the entire network. For example, Bob may believe that his neighbor's neighbor's . . . neighbor Anne may believe that the low probability event will happen with high conditional probability. Bob may reason that the neighbors of Anne will switch their actions because of Anne's beliefs. Their neighbors may then switch their actions, and their neighbors may as well. Through these higher-order beliefs about his neighbor's neighbor's . . . neighbor, Bob may change his behavior due to the beliefs of someone far removed from him in the network.