$n-$bits reactive strategies

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1 Introduction

In this work we explore *reactive strategies* in the infinitely repeated prisoner's dilemma. The prisoner's dilemma is a two person symmetric game that provides a simple model of cooperation. Each of the two players, p and q, simultaneously and independently decide to cooperate (C) or to defect (D). A player who cooperates pays a cost $c > 0$ to provide a benefit $b > c$ for the co-player. A cooperator either gets $b-c$ (if the co-player also cooperates) or $-c$ (if the co-player defects). Respectively, a defector either gets b (if the co-player cooperates) or 0 (if the co-player defects), and so, the payoffs of player p take the form,

$$\begin{array}{c} \\ \text{cooperate} \\ \text{defect} \end{array} \begin{array}{c} \begin{array}{cc} \text{cooperate} & \text{defect} \end{array} \\ \begin{pmatrix} b-c & -c \\ b & 0 \end{pmatrix} \end{array} \tag{1}$$

The transpose of (1) gives the payoffs of co-player q. We can also define each player's payoffs as vectors,

$$\mathbf{S}_p = (b-c, -c, b, 0) \quad \text{and} \quad \mathbf{S}_q = (b-c, b, -c, 0). \tag{2}$$

2 Model

3 Results

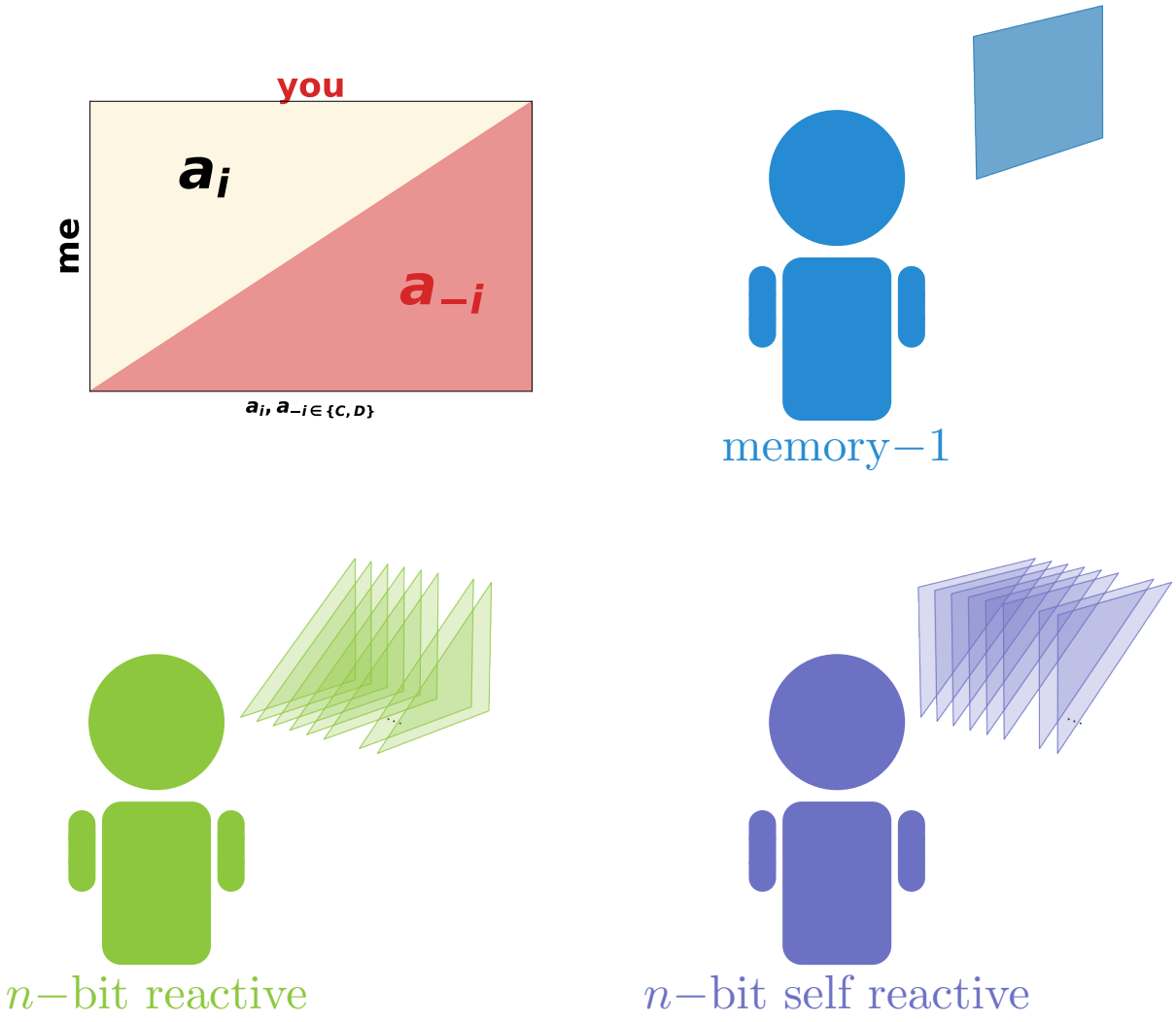

Figure 1: Conceptual figure model.