**PURPOSE**

Examine interactions between peers with an advertising payoff and peers with a selfish payoff in a simplistic network.

**DESCRIPTION**

NETWORK POPULATIONS:

|  |  |  |
| --- | --- | --- |
| Initial Population Size | Population Name | Payoff Strategy |
| 2 | Attack-profiles | Advertising Payoff |
| 2 | Random-profiles | Selfish Payoff |
| 40 | Documents | N/A |

POPULATION PROFILES:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Population Name | Rank Strategy | Like Strategy | Payoff Strategy | Follow Strategy | Publish Strategy | Tag Values |
| Attack-profiles | N/A | N/A | Advertising Payoff | N/A | Publish with Threshold and Cost | 1 |
| Random-profiles | Random TopK with Memory | Like Documents with Shared Tags | Selfish Payoff | Follow Similar Peers | Publish with Threshold and cost | 0 |
| Documents | N/A | N/A | N/A | N/A | N/A | 1 or 0 (random) |

STRATEGY DESCRIPTIONS:

Random TopK with Memory: This strategy returns a random list of documents of size K, it will remember and exclude documents that were in the list previously.

Like Documents with Shared Tags: The user will like documents that were returned by their rank strategy if that documents has at least one tag in common with the user.

Advertising Payoff: Rewards the user based on how many times documents with the same taste as them have been visited since the user’s last turn.   
  
Selfish Payoff: Rewards the user based on how many documents returned by their rank strategy have tags in common with the user. Punishes the user based on how many documents returned by their rank strategy have no tags in common with the user.

Follow Similar Peers: The user will follow peers who have liked documents that were returned by the user’s rank strategy this turn, and that the user liked.

Publish with Threshold and Cost: If the payoff the user received this turn is above a certain threshold, then the user will publish a document and a cost will be subtracted from the user’s payoff. The published document will possess the same tags as the user who published them.

**HYPOTHESIS**

Attack profiles are likely to reap large rewards, as their rewards are based on the turns of other peers. The more consuming peers in a network, the more successful the attack profiles, who all use an advertising payoff, will be.

**LAB 1 RESULTS – 0.5 reward for advertisers per view**

Figure 1: Populations of data by breed

Figure 2: Turn-score of user by breed

Figure 3: Total score of user by breed

Figure 4: Average score of all users

Based on figure one, we choose to arbitrarily ignore data points beyond turn 16 because the population is less than 50 for each breed.

Why is there a decay in the turn-payoff of attack peers?

Why does the turn-payoff for random peers jump around so much?

**LAB 2** – increase score to 1, include how many children each peer owns

**TERMS**

User: The peer who is currently acting.

Advertising Payoff: A payoff method that offers rewards the user based on how many times a group of documents is visited by other peers.

Selfish Payoff: A payoff method that offers rewards the user based on the documents that are found by the user.

Consuming Peers: Peers who use a selfish payoff.