Analysis of Kitts 2026 negative incentives vs. positive incentives:

The purpose of this document is to validate the NetLogo code based on Kitts et al. 2006 using the document 'Report Study 1 2011.06.15.pdf.' In order to do this, the present document focuses on validating the NetLogo code by comparing the behavior of the model vis-à-vis the insights of the figure on page 3 (i.e. phase diagram) in 'Report Study 1 2011.06.15.pdf'

In order to evaluate the behavior of the NetLogo code, we set up the following experiment (this set up follows the general set up of experiment 1 in Kitts 2006). Graphical results based on this experiment are in the Excel document 'phase_diagram_results.xls'

- lambda [0:1 by increments of 0.2];
- mu [0:40 by increments of 2];
- initial % working [0, 50, 90];
- alpha = 0.2 (homogenous);
- e = 2;
- c = 5;
- N = 10;
- g = 1;
- reps = 50,
- maxit = 1000

Please remember, to see the original phase diagram and the graphical representation of this results refer to the file 'phase_diagram_results.xls'

1) Behavior of the system above the dashed curve (green cells, i.e. when $\mu > 4$ at different levels of λ):

    - Above the dashed curve we always observe universal working regardless of initial conditions for both positive and negative incentives.

2) Behavior of the system below the solid line (red cells, i.e. when $\mu < 4$ irrespective of λ)

    - We always observe universal shirking in the case of negative incentives and $\mu \leq 4$
    - We always observe (near) universal shirking in the case of positive incentives and $\mu < 4$:
        - We always observe universal shirking in the case of positive incentives and $\mu < 2$
        - We observe **near** universal shirking (mean 0.996 across 50 reps) in the case of positive incentives and $\mu = 2$
    - We observe different levels of shirking in the case of positive incentives and $\mu = 4$. In general, we observe higher levels of shirking as λ increases.

3) Behavior of the system in the space between the dashed curve and the solid line (i.e. orange cells):

- We observe equilibrium levels of work that are quite stable and are unaffected by initial conditions (i.e. initial % working).
- We observe unstable equilibrium levels of work that are affected by initial conditions (i.e. initial % working). As initial % working increases the system approaches universal working.

In conclusion, the NetLogo code seem to follow the insights in the doc 'Report Study 1 2011.06.15.pdf'