Final Exam: Behavioral Economics

29^{th} July, 2008

LECTURER: PROF. HEIDHUES

Please answer the following two questions. The maximal number of points you can achieve is 60. You can answer the questions either in German or English, but not both. The usage of a calculator is not permitted.

Good Luck!!!

Exercise 1 (30 Points): Consider a student who has to write a term paper. The student can work on the term paper in $t = 1$ and $t = 2$. In each period $t = 1, 2$, the student can either work on the term paper, $a_t = 1$, or she decides not to work on the paper $a_t = 0$. If the student works in a period, she incurs immediate effort cost of $c = 10$. In period $t = 3$ she receives her grade/reward $g(a_1, a_2)$. The grade crucially depends on when and how often the student works on the term paper. Formally, $g(0, 0) = -14$, $g(1, 0) = 16$, $g(0, 1) = 8$ and $g(1, 1) = 30$. Suppose people can be modeled as having (β, δ) preferences and suppose throughout that $\delta = 1$. Furthermore, assume that if the person is a quasi-hyperbolic discounter, her degree of present biasedness is $\beta = 1/2$.

a) Calculate the behavior of a time-consistent person. (8P.)

b) Consider a naive hyperbolic discounter. When does this person work on the term paper? (8P.)

c) Calculate the behavior of a sophisticated hyperbolic discounter. (8P.)

d) Calculate the long-run utility for the naive student and the sophisticated student. Who is better off from a long-run perspective? Compare the behavior of sophisticates and naifs and give a brief intuitiv explanation for the different behavior of these two types of hyperbolic discounters. (6P.)

Exercise 2 (30 Points): Consider the "Battle of the Sexes", in which the players' material payoffs (x_1, x_2) are as follows:

		Player 2 A	Player 2 B
Player 1	A	10, 5	0, 0
	B	0, 0	5, 10

a) Consider a set of n players indexed by $i \in \{1, \ldots, n\}$, and let $\boldsymbol{x} = (x_1, \ldots, x_n)$ denote the vector of monetary payoffs. The utility function of player i is given by

$$U_i(\boldsymbol{x}) = x_i - \alpha_i \frac{1}{n-1} \sum_{j \neq i} \max\{x_j - x_i, 0\} - \beta_i \frac{1}{n-1} \sum_{j \neq i} \max\{x_i - x_j, 0\} ,$$

where $\beta_i \leq \alpha_i$ and $0 \leq \beta_i < 1$. Intuitively explain the Fehr-Schmidt model and its parameter restrictions. (8P.)

Suppose both players have preferences over monetary outcomes according to Fehr-Schmidt (not necessarily the same preferences).

b) Find all values of the preference parameters of the two players such that (A, A) is an equilibrium. (8P.)

c) Find all values of the preference parameters of the two players such that (A, B) is an equilibrium. (8P.)

d) Do parameter constellations exist such that there is a unique (pure strategy) equilibrium? If yes, find those values such that (A, A) is the unique equilibrium. (6P.)