Assignment 1:

Dynamically Inconsistent Preferences I: Perfect Monitoring

Consider the following two examples:

Example 1: Negative option offers

The practice of offering a service or a product to a consumer, and requiring him to explicitly reject it in order to avoid a charge, is called a “negative option offer”. Although it is not legally defined, the term is often applied to situations where some kind relationship already exists between the buyer and the seller. This marketing technique was first used by book clubs and naturally extended to CD and DVD/video clubs. Today, negative option offers are commonly used in other industries such as telephone and cable companies, who use these offers to enroll subscribers in optional services.

Consider a situation in which an agent exhibits a “reference-point effect”: his evaluation of available actions depends on whether he is *choosing* a contract or *cancelling* (or modifying) an existing contract. When choosing a contract, the agent cannot find a good enough reason for taking any action $a > 0$, hence $u(a) = 0$ for all a. After signing a contract, the agent's reference point changes, and he strictly prefers ‘higher’ actions, such that $v(a) = -(1-a)^2$. Assume zero costs.

The following scenario fits this specification. The agent considers insuring himself against a set of possible damages. The range of possible actions represents the amount of coverage offered by some insurance policy. In the absence of insurance, the agent believes that the contingencies specified in the policy are so unlikely, that thinking about them is not worth his while. However, once the agent obtains some insurance plan, he starts viewing the contingencies as realistic. Consequently, he prefers greater coverage.

Example 2: Casino players clubs

Consider an agent who contemplates gambling at a casino. Initially, he prefers to gamble for small amounts. However, once he starts gambling, his satiation point increases. Let a represent the amount of second-period gambling, and suppose that $u(a) = \frac{1}{2} - \left|a - \frac{1}{2}\right|$ and $v(a) = \frac{1}{2}a$. We abstract from the inherent uncertainty involved in gambling activity, thus ignoring the possibility that the gambler's tastes may depend on the outcome of his initial gamble. Assume zero costs.

Problem 1. Answer the following questions for each of the above two examples. For each question, assume first that a firm can charge an arbitrarily large fee for an action is does not want the consumer to take. Then try to find a “natural” contract that provides the same incentives as imposing prohibitely high fees.

(a) What is the optimal contract for a fully sophisticated consumer?

(b) What is the optimal contract for a fully naïve consumer?

(c) What is the optimal menu of contract when a consumer may either be fully naïve or fully sophisticated, but the monopolist cannot observe the consumer's type?

(d) Suppose that a firm identical to the monopolist has entered the market. What menus of contracts would the two firms offer (in a symmetric Nash equilibrium) if they cannot observe whether a consumer is fully naïve or fully sophisticated?

Problem 2. In this problem you are asked to solve a variant of the preference heterogeneity example discussed in class. In period 2, the consumer chooses between two actions, denoted L and H. There are two consumer types, denoted 1 and 2, both sophisticated. Their first- and second-period preferences are given as follows:

	L	H
u^1	0	1
v^1	1	0

	L	H
u^2	0	5
v^2	5	0

Find a menu of price schemes that screens the two consumer types. Can such a menu be optimal when consumers are dynamically consistent? Explain why.