

# Homework 6, Philosophy 112

February 19, 2009

**Due in class:** February 24, 2009

## Transcription Guide

$D = \{x: x \text{ is a positive integer}\}$

$o$ : one;  $w$ : two;  $t$ : three

$s$ : the successor function;  $p$ : the arithmetic product function  $x \times y$

$Gxy$ :  $x$  is greater than  $y$ ;  $Ex$ :  $x$  is even;  $Ox$ :  $x$  is odd

## 1 Transcription into English

Using the transcription guide above, transcribe the following sentences into English

- $(\exists x)(\exists y)(Ey \ \& \ p(x,y)=s(x))$
- $(\forall x)((\exists y)Gxy \supset \sim x = o)$
- $(\forall x)(Ox \supset (\exists y)(y = s(x) \ \& \ Ex))$
- $(\forall x)(\forall y)(Gxy \equiv (\sim Gyx \ \& \ \sim x = y))$

## 2 Transcription with Your Own Guide

Transcribe the following sentences into predicate logic, making up your own transcription guide for each sentence. Be sure to show as much logical form as possible.

- Only those who have two items of identification will be admitted to the building.
- All of the people can be fooled some of the time, and some of the people can be fooled all of the time, but not all the people can be fooled all of the time. (Based on a quotation attributed to P. T. Barnum)

### 3 Identity

Using the transcription guide given above, transcribe the following sentences into predicate logic.

- a. There are at least three positive integers whose successors are greater than three.
- b. At most two positive integers are less than three.
- c. Exactly two positive integers are less than the successor of two.

### 4 Definite Descriptions

Using the transcription guide given above, transcribe the following sentences into predicate logic.

- a. The positive integer less than two is one.
- b. The odd positive integer less than two is less than all other positive integers.