Philosophy 240, Kenny Easwaran
Midterm Sample 2

October 4, 2017

Name: _____

1. Validity. Make up an argument with the described premises and conclusion, or say why such an argument is impossible. (10 pts each)
   (a) Valid, with one false premise, one true premise, and a false conclusion.

   (b) Invalid, with two true premises, and a true conclusion.

   (c) Valid, with one true premise and a false conclusion.

2. Translations (10 pts each)
   (a) Translate the following sentences from English into the formal language of Tarski's World.
      i. Either a or b is a medium tetrahedron.

      ii. c and a are not both medium.

      iii. a is either a cube or a tetrahedron, and it is in the same row as d.

(b) Give ordinary English translations of the following sentences in the formal language of Tarski's World.

i. ((Large(c)∧Cube(c))∧(Large(a)∧Tet(a)))

ii. ¬(Cube(a)∨ Tet(a))

iii. LeftOf(a,b)∧¬BackOf(a,c)

3. Say whether each of the following arguments is valid. If it is valid, show this using a truth table. If it is invalid, show this by describing a situation that would be a counterexample. (20 pts each)

(a) Cube(a). Large(a)∨Small(a). Therefore, ((Large(a)∧Cube(a))∨(Small(a)∧Cube(a))).

(b) Cube(a)∨Cube(b). ¬(Cube(a)∧Small(a)). Therefore, Small(a)∨Cube(b).

4. Consider the following table. What is the probability of $A \vee C$? What is the probability of $A \vee C$ given $\neg B$? Is the argument, "$\neg B$, therefore $A \vee C$" a good one? How good? (20 pts)

A	B	C	probability
T	T	T	.2
T	T	F	.1
T	F	T	.1
T	F	F	.2
F	T	T	.1
F	T	F	.1
F	F	T	.1
F	F	F	.1