

## LESSON 4 - PRACTICE EXERCISE KEY

NOTE - Any homework exercises for this lesson not included below are gradeable by the software program and/or through the online Grade Grinder

### 2.1

	Valid	Sound in Socr	Sound in Witt
1	V	S	U
2	V	S	U
3	V	S	U
4	V	S	U
5	I	U	U
6	V	S	U
7	I	U	U
8	I	U	U

### 2.2 (there may be other legitimate ways to interpret these arguments)

1. Anyone who wins an AW is famous  
Meryl St won an AW  
---- (Therefore,) Meryl St is famous.  
VALID / SOUND?? - DEPENDS ON HOW YOU DEFINE "FAMOUS"
2. Actors who win AW are famous  
Harr Ford has never won an AW  
---- Harr Ford is not famous.  
INVALID / UNSOUND
3. CH said the right to bear arms is the most important freedom.  
CH is never wrong.  
---- The right to bear arms is the most important freedom.  
VALID / UNSOUND
4. Al Gore is a politician  
Hardly any politicians are honest  
---- Al Gore must be dishonest  
INVALID / UNSOUND
5. Sam Clemens was born in Hannibal, MO  
Mark Twain is Sam Clemens  
---- Mark Twain lived in Hannibal, MO  
INVALID / UNSOUND
6. We were closed last night  
No one under 21 bought beer here last night  
---- No one bought anything last night.

VALID

7. Max lives on the same street as Laura.  
Claire lives on the same street as Max  
---- Claire lives on the same street as Laura

VALID

### 2.3 (Again, there may be other ways to interpret these ...)

1. Many of the students in the film class attend film screenings.  
--- There must be many students in the film class.

INVALID - DIFFERENT SCOPES OF "MANY" HERE

2. There few students in the film class  
Many of these students attend the film screenings  
---- There are many students in the film class

INVALID

3. Many students attend film screenings  
Only students in the film class attend screenings  
---- There are many students in the film class

VALID

4. There are thirty students in the film class  
Some of the students turn in their homework on time  
Most of the students went to the all-night party  
---- Some student who went to the party managed to turn in the homework on time

INVALID

5. There are thirty students in my logic class  
Some of the students turned in their homework on time  
They all went to the party  
---- Some student who went to the all-night party must have turned in the homework on time

VALID (THOUGH AMBIGUOUS-BUT VALID ON EITHER INTERPRETATION OF "THEY")

6. There are thirty students in my logic class  
Most of the students turned in their homework on time  
Most of the students went to the all-night party  
---- Some student who went to the party turned in the homework on time

VALID

### 2.5

We are told that  $a = b$  and also that  $b = c$ . Using the latter identity statement ( $b = c$ ), by the **indiscernibility of identicals** we may substitute  $c$  for  $b$  in the first identity statement ( $a = b$ ), giving us  $a = c$ . Thus, we have proven the transitivity of identity.

## 2.7

a) Yes.

b) NO. Not only might Nancy not be Claire's mother, Nancy might not be *anybody's* mother.

c) NO. Claire might be Nancy's sister and Max's aunt.

THE FOLLOWING ARGUMENTS ARE VALID:\*

## 2.9

We are told that a is left of b and that  $b = c$ ; therefore, by the indiscernibility of identicals, a must be left of c. But if a is left of c, then c must be right of a, because "right of" and "left of" are inverses of one another.

## 2.12

We are told that a is in back of b; therefore, b must be in front of a, because "in back of" and "in front of" are inverse relations. We are also told that a is in front of c; therefore, b must be in front of c by the transitivity of "in front of."

## 2.13

We are told that a is larger than c; therefore, c is smaller than a by the fact that "is larger than" and "is smaller than" are inverse relations. We are also told that a is the same size as b; therefore, c is smaller than b because of the fact that "is the same size as" is a symmetric relation. We are told that d is smaller than c; therefore d is smaller than b because "is smaller than" is a transitive relation.

## 2.14

We are told that a is to the left of c, but we are also told that b is between a and c. Therefore, by the meaning of the predicate "between," b must be both to the right of a and to the left of c. But if b is to the right of a, then it a is also to the left of b, because "right of" and "left of" are inverses of one another.

\*NOTE THAT YOU SHOULD BE ABLE TO BUILD COUNTEREXAMPLE WORLDS IN TARSKI'S WORLD FOR EXERCISES 2.8, 2.10, AND 2.11 BECAUSE THOSE ARGUMENTS ARE *INVALID*.