

## CS 100 - Homework 4

### Deadline:

Due by 11:59 pm on Friday, September 21

### How to submit:

- Go to the course Moodle site.
  - (either log into myHumboldt and click the Moodle button in the upper right corner,
  - or get to it via [learn.humboldt.edu](http://learn.humboldt.edu),
    - ...and then click the "my moodle" button in the upper right under the big yellow moodle logo to get your list Moodle course sites,
    - or follow the link from the public course web site, [users.humboldt.edu/smtuttle/f12cs100](http://users.humboldt.edu/smtuttle/f12cs100))
- Once you are at the course Moodle site, find the section titled "Submit your HOMEWORK FILES here",
  - and click on the link "Click HERE to submit Homework 4".
- You should see, in the middle of the page, a place where you can upload your homework file.
  - Note that I believe I set this up to permit multiple submissions. I couldn't set it to "unlimited", because the largest number available was 20, but that seems like it should be ample.
  - Also note that I will grade the latest file submitted before the deadline unless you e-mail and tell me otherwise.

### Purpose:

To get more practice in determining which natural language phrases/sentences are logical statements, to practice identifying the premise(s) and conclusion within an argument, to think a bit more about conditional statements, and to practice distinguishing between arguments and nonarguments.

### Important notes:

- Type:
  - your name, then
  - the problem number and your answer for each of the following questions,
  - into a file named `cs100hw4` (optionally followed by your name, including only letters and underscores -- NO blanks or other unusual characters)
  - Its format may be `.txt`, `.odt`, `.pdf`, `.doc`, `.docx`, or `.jpg`. (Please ask me before submitting files of other formats -- for example, please do not submit `.pages` documents,

because our grader cannot read them.)

- It is possible that your answers may be compiled and posted to the course Moodle site.

### **Problem 1:**

(the following are adapted from the course textbook and its instructor's materials)

For each of the following, determine whether it is a logical statement or not. Put the sentence number, and if it is a logical statement, answer "Statement"; if it is not a logical statement, answer "Nonstatement". Unless additional context is given, assume typical contexts for each.

1-1. Borrow money from pessimists. [rest of context: -- they don't expect it back.] (Steven Wright)

1-2. Who let the dogs out?

1-3. Give me a call if you have trouble downloading the file.

1-4. If Winter comes, can Spring be far behind? (Shelley)

1-5. Associate not with evil men. [rest of context: ...lest you increase their number.]

### **Problem 2:**

Consider Exercise 2.2, Problems I and II in the course textbook, on pp. 36-39.

For each of the specified arguments, identify its premise(s) and conclusion. Put the Problem 2 part number, then each premise labeled by "Premise:", and then the conclusion labeled by "Conclusion:".

For example, for the argument:

Ex-1. Problem I, Argument 1 ("Since light...")

you could answer:

Ex-1. Premise: Light takes time to reach our eyes.

Conclusion: All that we see really existed in the past.

2-1. Problem I, Argument 2 ("Life changes...")

2-2. Problem I, Argument 8 ("Do not play...")

2-3. Problem I, Argument 9 ("The invention...")

2-4. Problem I, Argument 12 ("Don't worry...")

2-5. Problem II, Argument 8 ("Philosophy is...")

2-6. Problem II, Argument 9 ("Our nation...")

### **Problem 3:**

Consider Exercise 2.4, Problems I and II in the course textbook, on pp. 47-51.

For each given or specified passage, determine whether it contains an argument or not. Put the Problem 3 part number, then if it is an argument, answer "Argument"; if it is not an argument, answer "Nonargument".

3-1. Problem I, Passage 2 ("He must...")

3-2. Problem I, Passage 8. ("The rich...")

3-3. Problem I, Passage 9. ("I stayed...")

3-4. Now is the time for all good men to come to the aid of their country.

3-5. Problem I, Passage 12. ("If there were no...")

3-6. Problem I, Passage 15. ("You can fool...")

3-7. Problem I, Passage 24. ("Never hit...")

3-8. Spike is a dachshund-papillon mix. Rover is a purebred poodle.

3-9. Problem II, Passage 2. ("A good schoolmaster...")

3-10. I went to the meeting last week. The City Council voted to approve Measure Z because they said it was supported by the majority of citizens who voted in last week's election.

3-11. Problem II, Passage 5. ("Why are there...")

3-12. Problem II, Passage 14. ("I always...")

### **Problem 4:**

A Prolog rule is a conditional statement!

Consider:

- `like_pacific_nw(Place) :- cool(Place), rainy(Place).`
  - One way to state this rule in natural language could be as a conditional statement:  
IF a place is cool, and that same place is rainy,  
THEN that place is like the Pacific Northwest.

Here is another example:

- `good_to_eat(Item) :- food(Item), healthy(Item).`
  - This rule can also be stated in natural language as a conditional statement:  
IF an item is food, and that same item is healthy,  
THEN that item is good to eat.

And here is one more:

- `friends(Person1, Person2) :- likes(Person1, Person2),  
likes(Person2, Person1).`
  - This rule can be stated in natural language as a conditional statement as:  
IF person #1 likes person #2, and person #2 likes person #1,  
THEN person #1 and person #2 are friends.

Practice writing natural language conditional statements for each of the following Prolog rules:

**4 part a**

(adapted from [http://www.csupomona.edu/~jrfisher/www/prolog\\_tutorial](http://www.csupomona.edu/~jrfisher/www/prolog_tutorial))

```
is_giraffe(Animal) :- is_ungulate(Animal),  
                      has_long_neck(Animal),  
                      has_long_legs(Animal).
```

**4 part b**

```
natural_number(Number) :- integer(Number), Number > 0.
```

**4 part c**

```
should_buy(Person, Item) :- inexpensive(Item),  
                             useful_to(Item, Person),  
                             desired_by(Item, Person).
```